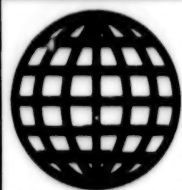


JPRS-TEN-92-015
30 JULY 1992



**FOREIGN
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JPRS Report

Environmental Issues

Environmental Issues

JPRS-TEN-92-015

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Text of CSCE Helsinki Declaration

LD1007131292 Moscow ITAR-TASS in English
1158 GMT 10 Jul 92

[By ITAR-TASS]

[Text] Helsinki, July 10 (TASS)—Follows the full text of the Helsinki Summit Declaration:

Promises and Problems of Change

1. We, the heads of state or government of the states participating in the Conference on Security and Cooperation in Europe, have returned to the birthplace of the Helsinki Process, to give new impetus to our common endeavour.

2. The Charter of Paris for a new Europe, signed at the last summit, defined a common democratic foundation, established institutions for cooperation and set forth guidelines for realization of a community of free and democratic states from Vancouver to Vladivostok.

3. We have witnessed the end of the cold war, the fall of totalitarian regimes and the demise of the ideology on which they were based. All our countries now take democracy as the basis for their political, social and economic life. The CSCE has played a key role in these positive changes. Still, the legacy of the past remains strong. We are faced with challenges and opportunities, but also with serious difficulties and disappointments.

4. We have met here to review recent developments, to consolidate the achievements of the CSCE and to set its future direction. To meet new challenges we are approving here today a programme to enhance our capabilities for concerted action and to intensify our cooperation for democracy, prosperity and equal rights of security.

5. The aspirations of peoples freely to determine their internal and external political status have led to the spread of democracy and have recently found expression in the emergence of a number of sovereign states. Their full participation brings a new dimension to the CSCE.

6. We welcome the commitment of all participating states to our shared values. Respect for human rights and fundamental freedoms, including the rights of persons belonging to national minorities, democracy, the rule of law, economic liberty, social justice and environmental responsibility are our common aims. They are immutable. Adherence to our commitments provides the basis for participation and cooperation in the CSCE and a cornerstone for further development of our societies.

7. We reaffirm the validity of the guiding principles and common values of the Helsinki Final Act and the Charter of Paris, embodying responsibilities of states towards each other and of governments towards their people. These are the collective conscience of our community. We recognize our accountability to each other for complying with them. We underline the democratic

rights of citizens to demand from their governments respect for these values and standards.

8. We emphasize that the commitments undertaken in the field of the human dimension of the CSCE are matters of direct and legitimate concern to all participating states and do not belong exclusively to the internal affairs of the state concerned. The protection and promotion of human rights and fundamental freedoms and the strengthening of democratic institutions continue to be a vital basis for our comprehensive security.

9. The transition to and development of democracy and market economy by the new democracies is being carried forward with determination amidst difficulties and varying conditions. We offer our support and solidarity to participating states undergoing transformation to democracy and market economy. We welcome their efforts to become fully integrated into the wider community of states. Making this transition irreversible will ensure the security and prosperity of us all.

10. Encouragement of this sense of wider community remains one of our fundamental goals. We welcome in this connection the rapid adaptation of European and Transatlantic institutions and organizations which are increasingly working together to face up to the challenges before us and to provide a solid foundation for peace and prosperity.

The European Community (EC), fulfilling its important role in the political and economic development of Europe, is moving towards a union and has decided to broaden its membership. It is closely involved in CSCE activities.

The North Atlantic Treaty Organization (NATO), one of the essential Transatlantic links, has adopted a new strategic concept and strengthened its role as an integral aspect for security in Europe. Through establishment of the North Atlantic Cooperation Council (NACC) it has established patterns of cooperation with new partners in harmony with the goals of the CSCE. It has also offered practical support for the work of the CSCE.

The Western European Union (WEU) is an integral part of the development of the European Union, it is also the means to strengthen the European pillar of the Atlantic Alliance, it is developing an operational capacity, it is opening itself to additional cooperation with new partners and has offered to provide resources in support of the CSCE.

The Council of Europe is elaborating its own programmes for new democracies, opening up to new members and is cooperating with the CSCE in the human dimension.

The group of seven and the group of twenty-four are deeply engaged in assistance to countries in transition.

The Organisation for Economic Cooperation and Development (OECD), United Nations Economic Commission for Europe (ECE) and the European Bank for Reconstruction and Development (EBRD) have a key role to play in the construction of a new Europe.

The Commonwealth of Independent States (CIS) has stated its readiness to assist the CSCE in pursuit of its objectives.

These and the other forms of regional and sub-regional cooperation which continue to develop, such as the Council of the Baltic Sea States, the Visegrad Triangle, the Black Sea Economic Cooperation and the central European initiative, multiply the links uniting CSCE participating states.

11. We welcome the adoption of the Vienna 1992 document on confidence- and security-building measures and the signature of the Treaty on Open Skies, with the adoption of the declaration on the Treaty on Open Skies. We also welcome the imminent entry into force of the treaty on Conventional Armed Forces in Europe (CFE) and the concluding act of the negotiation on personnel strength of conventional Armed Forces in Europe. These agreements provide a solid foundation for our further security cooperation. We welcome the recent United States-Russian joint understanding on strategic offensive arms. We reaffirm our commitment to become original signatories to the forthcoming convention on the prohibition of the development, production, stockpiling and use of chemical weapons and on their destruction, and urge other states to do so.

12. This is a time of promise but also a time of instability and insecurity. Economic decline, social tension, aggressive nationalism, intolerance, xenophobia and ethnic conflicts threaten stability in the CSCE area. Gross violations of CSCE commitments in the field of human rights and fundamental freedoms, including those related to national minorities, pose a special threat to the peaceful development of society, in particular in new democracies.

There is still much work to be done in building democratic and pluralistic societies, where diversity is fully protected and respected in practice. Consequently, we reject racial, ethnic and religious discrimination in any form. Freedom and tolerance must be taught and practised.

13. For the first time in decades we are facing warfare in the CSCE region. New armed conflicts and massive use of force to achieve hegemony and territorial expansion continue to occur. The loss of life, human misery, involving huge numbers of refugees have been the worst since the Second World War. Damage to our cultural heritage and the destruction of property have been appalling.

Our community is deeply concerned by these developments. Individually and jointly within the CSCE and the United Nations and other international organizations,

we have sought to alleviate suffering and seek long term solutions to the crises which have arisen.

With the Helsinki decisions, we have put in place a comprehensive programme of coordinated action which will provide additional tools for the CSCE to address tensions before violence erupts and to manage crises which may regrettably develop. The council and the committee of senior officials have already established for the CSCE an important role in dealing with crises which have developed within our area.

No international effort can be successful if those engaged in conflicts do not reaffirm their will to seek peaceful solutions to their differences. We stress our determination to hold parties to conflicts accountable for their actions.

14. In times of conflict the fulfillment of basic human needs is most at risk. We will exert every effort to ensure that they are met and that humanitarian commitments are respected. We will strive to relieve suffering by humanitarian cease-fires and to facilitate the delivery of assistance under international supervision, including its safe passage. We recognize that the refugee problems resulting from these conflicts require the cooperation of all of us. We express our support for and solidarity with those countries which bear the brunt of the refugee problems resulting from these conflicts. In this context we recognize the need for cooperation and concerted action.

15. Even where violence has been contained, the sovereignty and independence of some states still needs to be upheld. We express support for efforts by CSCE participating states to remove, in a peaceful manner and through negotiations, the problems that remain from the past, like the stationing of foreign armed forces on the territories of the Baltic States without the required consent of those countries.

Therefore, in line with basic principles of international law and in order to prevent any possible conflict, we call on the participating states concerned to conclude, without delay, appropriate bilateral agreements, including timetables, for the early, orderly and complete withdrawal of such foreign troops from the territories of the Baltic States.

16. The degradation of the environment over many years threatens us all. The danger of nuclear accidents is a pressing concern. So are, in several parts of the CSCE area, defence-related hazards for the environment.

17. The present proliferation of weapons increases the danger of conflict and is an urgent challenge. Effective export controls on nuclear materials, conventional weapons and other sensitive goods and technologies are a pressing need.

The CSCE and the Management of Change

18. The CSCE has been instrumental in promoting changes, now it must adapt to the task of managing them. Our decisions in Helsinki are making the CSCE more operational and effective. We are determined to fully use consultations and concerted action to enable a common response to the challenges facing us.

19. In approaching these tasks, we emphasize the central role of the CSCE in fostering and managing change in our region. In this era of transition, the CSCE is crucial to our efforts to forestall aggression and violence by addressing the root causes of problems and to prevent, manage and settle conflicts peacefully by appropriate means.

20. To this end, we have further developed structures to ensure political management of crises and created new instruments of conflict prevention and crisis management. We have strengthened the council and the Committee of Senior Officials (CSO) and devised means to assist them. The CSCE capacities in the field of early warning will be strengthened in particular by the activities of the newly established high commissioner on national minorities.

We have provided for CSCE peacekeeping according to agreed modalities. CSCE peacekeeping activities may be undertaken in cases of conflict within or among participating states to help maintain peace and stability in support of an ongoing effort at a political solution.

In this respect, we are also prepared to seek, on a case-by-case basis, the support of international institutions and organizations, such as the EC, NATO and WEU, as well as other institutions and mechanisms, including the peacekeeping mechanism of the CIS. We welcome their readiness to support CSCE peacekeeping activities, including by making available their resources.

We are further developing our possibilities for peaceful settlement of disputes.

21. Our approach is based on our comprehensive concept of security as initiated in the final act. This concept relates the maintenance of peace to the respect for human rights and fundamental freedoms. It links economic and environmental solidarity and cooperation with peaceful interstate relations. This is equally valid in managing change as it was necessary in mitigating confrontation.

22. The CSCE is a forum for dialogue, negotiation and cooperation, providing direction and giving impulse to the shaping of the new Europe. We are determined to use it to give new impetus to the process of arms control, disarmament and confidence- and security-building, to the enhancement of consultation and cooperation on security matters and to furthering the process of reducing the risk of conflict. In this context, we will also consider new steps to further strengthen norms of behaviour on

politico-military aspects of security. We will ensure that our efforts in these fields are coherent, interrelated and complementary.

23. We remain convinced that security is indivisible. No state in our CSCE community will strengthen its security at the expense of the security of other states. This is our resolute message to states which resort to the threat or use of force to achieve their objectives in flagrant violation of CSCE commitments.

24. Essential to the success of our efforts to foster democratic change within the CSCE framework will be increased cooperation with other European and Transatlantic organizations and institutions. Therefore, we are convinced that a lasting and peaceful order for our community of states will be built on mutually reinforcing institutions, each with its own area of action and responsibility.

25. Reaffirming the commitments to the charter of the United Nations as subscribed to by our states, we declare our understanding that the CSCE is a regional arrangement in the sense of chapter VIII of the charter of the United Nations. As such, it provides an important link between European and Global security. The rights and responsibilities of the Security Council remain unaffected in their entirety. The CSCE will work together closely with the United Nations especially in preventing and settling conflicts.

26. We restate our unreserved condemnation of all acts, methods and practices of terrorism. We are determined to enhance our co-operation to eliminate this threat to security, democracy and human rights. To this end, we will take measures to prevent in our territories criminal activities that support acts of terrorism in other states. We will encourage exchange of information concerning terrorist activities. We will seek further effective avenues for co-operation as appropriate. We will also take necessary steps at a national level to fulfil our international obligations in this field.

27. Illicit trafficking in drugs represents a danger to the stability of our societies and democratic institutions. We will act together to strengthen all forms of bilateral and multilateral co-operation in the fight against illicit trafficking in drugs and other forms of international organized crime.

28. We will work to reinforce the close link which exists between political pluralism and the operation of a market economy. Enhanced co-operation in the field of economy, science and technology has a crucial role to play in strengthening security and stability in the CSCE region.

29. Economic co-operation remains an essential element of the CSCE. We will continue to support the transformations under way to introduce market economies as the means to enhance economic performance and increased integration into the international economic and financial systems.

30. We will also facilitate expanded economic co-operation which must take account of the prevailing political and economic conditions. We welcome the contribution of economic, financial and technical assistance programmes of the group of seven and the group of twenty-four to the transition process. In the framework of our co-operation we fully support the further development of the European energy charter which is of particular importance in the period of transition.

31. We will work together to help facilitate means of transportation and communication in order to deepen co-operation among us.

32. We renew our commitment to co-operate in protecting and improving the environment for present and future generations. We stress in particular the importance of co-operation to effectively ensure the safety of nuclear installations and to bring defence-related hazards for the environment under control.

We emphasize the need for greater public awareness and understanding of environmental issues and for public involvement in the planning and decision-making process.

We welcome the important outcome of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. We emphasize the need for effective and sustained implementation of UNCED decisions.

33. Further steps must be taken to stop the proliferation of weapons. It remains vital to ensure non-proliferation of nuclear weapons and the relevant technology and expertise. We urge all states which have not acceded to the treaty on non-proliferation of nuclear weapons to do so as non-nuclear weapons states and to conclude safeguards agreements with the International Atomic Energy Agency (IAEA). We commit ourselves to intensify our co-operation in the field of effective export controls applicable to nuclear materials, conventional weapons and other sensitive goods and technologies.

34. We welcome the development of regional co-operation among CSCE participating states as a valuable means of promoting pluralistic structures of stability. Based on the CSCE principles and commitments, regional co-operative activities serve the purpose of uniting us and promoting comprehensive security.

35. We encourage wide-ranging transfrontier co-operation, including human contacts, involving local and regional communities and authorities. This co-operation contributes to overcoming economic and social inequalities and enhancing ethnic understanding, fostering good-neighbourly relations among states and peoples.

36. In order to ensure full participation and co-operation by recently admitted participating states we are initiating a programme of co-ordinated support.

37. We reaffirm our conviction that strengthening security and co-operation in the Mediterranean is important for stability in the CSCE region. We recognize that the changes which have taken place in Europe are relevant to the Mediterranean region and that, conversely, economic, social, political and security developments in that region have a direct bearing on Europe.

38. We will therefore widen our co-operation and enlarge our dialogue with the non-participating Mediterranean states as a means to promote social and economic development, thereby enhancing stability in the region, in order to narrow the prosperity gap between Europe and its Mediterranean neighbours and protect the Mediterranean ecosystems. We stress the importance of intra-Mediterranean relations and the need for increased co-operation within the region.

39. We welcome and encourage the continuation of initiatives and negotiations aimed at finding just, lasting and viable solutions, through peaceful means, to the outstanding crucial problems of the Mediterranean region.

40. We have expanded dialogue with nonparticipating states, inviting them to take part in our activities on a selective basis when they can make a contribution.

41. We welcome the establishment of the CSCE Parliamentary Assembly which held its first meeting in Budapest on 3 to 5 July and look forward to the active participation of parliamentarians in the CSCE process.

42. We attach particular importance to the active involvement of our publics in the CSCE. We will expand the opportunities for contributions by and co-operation with individuals and nongovernmental organizations in our work.

43. In order to foster our partnership, and to better manage change, we have today in Helsinki adopted an agenda for a strengthened and effective CSCE through the Helsinki decisions. These decisions will be implemented fully and in good faith.

44. We entrust the council with the further steps which may be required to implement them. The council may adopt any amendment to the decisions which it may deem appropriate.

45. The full text of the Helsinki document will be published in each participating state, which will make it known as widely as possible.

46. The government of Finland is requested to transmit to the secretary-general of the United Nations the text of the Helsinki document, which is not eligible for registration under article 102 of the charter of the United Nations, with a view to its circulation to all the members of the organization as an official document of the United Nations.

47. The next review conference will be held in Budapest in 1994 on the basis of modalities of the Helsinki

follow-up meeting, *Mutatis Mutandis*, to be further specified by the CSO which may decide to organize a special preparatory meeting.

Helsinki, 10 July 1992

Shevardnadze Addresses Opening Session of Black Sea Summit

TA2506142592 Ankara TRT Television Network
in Turkish 0735 GMT 25 Jun 92

[Speech by Georgian State Council Chairman Eduard Shevardnadze at the opening session of the Black Sea Economic Cooperation Summit in Istanbul—live, in Russian with superimposed simultaneous translation into Turkish]

[Text] Honorable president, ladies and gentlemen: In December 1990, when I was speaking to Turkish President Turgut Ozal, I was first informed about the project, which would later be known worldwide as the Ozal plan. This plan is now turning into the Black Sea Economic Cooperation Project [BSECP] declaration. Most of us consider the establishment of a healthy economy as the fundamental democratic duty of states. The economic cooperation among the countries in the Black Sea region envisaged by this project constitutes a significant and unique opportunity for us.

Following the [word indistinct] interpretation of the situation, we feel obliged to state the following: Unless there are solid guarantees for the security of each country, especially the countries participating in the BSECP, this unity is condemned to wither before it flourishes.

We are living through difficult times. The Black Sea region is quite tense and is currently the stage for dangerous conflicts. At the moment, it is essential to hold active political negotiations in addition to economic cooperation. Mutual interaction must take place on a regional level within various structures of cooperation. Allow me to express my views on this subject.

First, we propose to establish a regional organization that will provide high-level political, economic, ecological, cultural, and legal integration. Time is needed for the 10 countries in the Black Sea region to reach a stage where they can work in unity. We will march in this direction. The Georgian delegation has reached an agreement to protect the unity of the Black Sea region. We propose to establish a multinational secretariat with headquarters in Istanbul. This secretariat must be chaired by the heads of state of the signatory countries on a rotational basis. This organization must also meet annually in Istanbul at the highest level. Furthermore, various political and economic integration programs must be prepared both at a general assembly and at the secretariat.

Second, we are proposing to establish the following organs affiliated with the Black Sea union: foreign ministers committee; defense ministers committee; bureaus

to liaise with the CSCE and other international organizations; agencies concerning environmental protection and the ecology of the Black Sea; committees for culture, sports, tourism, and leisure; bureaus on human rights, minority rights, and religion; entrepreneurs union; trade and transit transportation committee; and committee for social issues and immigration.

Third, all heads of state are encountering various issues here. There are no single solutions to these problems. I believe that we can succeed only if we try to resolve these problems collectively. I further propose to establish a committee that will take measures regarding confrontations, a committee to be comprised of representatives from all the participating countries. Georgia is ready to fulfill its task concerning this committee.

We are also proposing a moratorium on changes to the existing borders for the next five years, even until the year 2000. Failing this, it will be impossible for us to conduct the necessary border negotiations at this stage. Moreover, important steps must be taken to protect cease-fires and the status quo in practice. Such a moratorium can be realized through an intensive dialogue and political negotiations.

[Word indistinct] is responsible for undertaking the necessary tasks concerning the reduction of military forces in Europe. In addition, all the necessary measures must be adopted in connection with the Helsinki process, and these measures must be introduced into our region.

Because we are conducting cooperation in the Black Sea region, we must engage in activities to reduce the naval forces in the Black Sea region in accordance with the Paris Charter. I am talking about signing an agreement or a convention for the adoption of measures to reduce naval forces in charge of sea, underwater, and shore defense. My proposal also envisages the just resolution of the problem concerning the Black Sea Fleet belonging to the former Soviet Union. If needed, we are ready to adopt the necessary measures on this subject. It will also be very beneficial for all Black Sea countries to accept certain quotas with regard to this issue. The problems concerning the Black Sea Fleet can thus be solved.

Fourth, it will be beneficial to make certain reciprocal commitments. We are talking about newly established states, as well as countries with which the Soviet Union was formerly engaged in good-neighborly relations. Given these circumstances, it is possible to take significant steps toward the gradual solution of the legal, economic, financial, and other problems between the relevant countries.

Honorable ladies and gentlemen, as mentioned in Georgian mythology, [words indistinct] sought salvation in these territories in the Black Sea. In these difficult times, we are also seeking the same salvation in the Black Sea region within an atmosphere of friendship and cooperation. I hope that we will find this with your cooperation.

SOUTH AFRICA

Addo Park Elephant Population Increasing

92WN0595D Cape Town *THE ARGUS* in English
7 May 92 p 11

[Article: "Addo Park Has Jumbo Growth Rate"]

[Text] Johannesburg—The elephant population of the Addo Elephant National Park in the Eastern Cape has grown by more than 15 percent over the past year.

Park head Lucius Moolman said, at the end of a two-day game count this week, that 284 kudu were counted, compared with 235 last year—and as a result of the increase 47 of the animals were culled.

The buffalo population also showed an increase on last year's figures, but six of the animals had been sold. Five had been bought for a game farm bordering Botswana.

A game count will be made next week at the Mountain Zebra National Park near Cradock.—Sapa.

SWAZILAND

King Calls for 'New World Economic Order'

MB2006085392 Mbabane *THE SWAZI NEWS*
in English 20 Jun 92 p 24

[Report by Nimrod Mabuza: "King Talks About World Order"]

[Text] His Majesty, King Mswati III has called for a new world economic order in which the environment and development are in harmony with each other.

The King's message to the world was delivered last week by the Prime Minister, Mr. Obed Dlamini who represented His Majesty in the United Nations Conference on Environment and Development [UNCED] in Brazil.

His Majesty said Swaziland recognises that this new economic order has heavy financial implications. "The

significance of effectively mobilizing new and additional financial resources for the successful implementation of the decisions of this summit, cannot be over emphasized," he said.

The King said that Swaziland, like all sub-Saharan countries, is experiencing several environmental problems.

His Majesty said his government is, however, committed in implementing programmes which will be approved at the summit.

"It is my fervent hope that my country will continue to be assisted by our co-operating partners in this endeavour.

"I would also like to congratulate UNCED for giving the subject of drought and desertification the priority it deserves".

The King informed the world that Swaziland and the whole region is faced with a severe drought.

He said for Swaziland such a serious drought has never occurred in the history of the country.

"As a matter of urgency we all need any assistance we can secure to alleviate the on-going human suffering," he said.

The King called on world leaders to deviate from their role as national leaders and deal with environmental issues.

"Instead let us come together and form a common leadership that will speak with one voice on environmental problems affecting this great planet".

"Only in this capacity of true global partnership can we act with a common concern for the world and the ecological problems that have caught up with us".

The King assured the world that Swaziland fully supports the ideals and goals embraced in Agenda 21.

He said Swaziland is also fully committed to the implementation of this agenda.

State Environment Director Briefs NPC on Rio Conference

OW3006055392 Beijing XINHUA Domestic Service
in Chinese 1239 GMT 27 June 92

[Text] Beijing, 27 June (XINHUA)—Entrusted by the State Council, Qu Geping, director of the State Environmental Protection Bureau, today briefed the 26th meeting of the Standing Committee of the Seventh National People's Congress on our country's participation in the United Nations Conference on Environment and Development [UNCED].

The UNCED was held in Rio de Janeiro, Brazil from 3 to 14 June. Delegations from 183 countries attended the conference, as did delegates from 70 international organizations, including the UN and its affiliated organizations. A total of 102 heads of state or government personally attended the conference. Premier Li Peng attended the summit meeting of the conference at the invitation of UN Secretary General Ghali and Brazilian President Collor. He delivered an important speech and held wide-ranging talks with high-ranking officials. Taking longer to prepare than any previous environmental convention, the conference was the largest and highest-level international meeting on global environment and development since the 1972 UN Conference on Human Environment. It was a grand meeting with the most profound impact in the history of human environment and development.

In his briefing, Qu Geping related the principal achievements of the conference. First, five documents—"The Rio Declaration on Environment and Development," "Agenda 21," "The Statement of Principles on Forestry Issues," "The Framework Convention on Climatic Changes," and "The Convention on Biodiversity"—were adopted and signed at the conference. These documents are conducive to protecting the global ecology and biological resources. While urging developed countries to assume more obligations, they take account of the special circumstances and interests of developing countries. Second, the conference generally heightened environmental awareness. Third, the notion that environmental protection is inextricably linked with economic development met with universal acceptance. The conventional model of development based on "high production, high consumption, and high pollution" was repudiated, while the call for coordinating environmental protection and economic development became a point of consensus for the participating countries as well as the keynote of the conference. Fourth, the conference helped launch the North-South dialogue that had been deadlocked for a protracted period. The North and South expressed sincerity in cooperating on certain issues and achieved some positive results. Fifth, the conference safeguarded such important principles as national sovereignty and the right to economic development. Sixth, the huge masses of developing countries played a leading role in the conference, fully demonstrating their position as an unignorable and increasingly important force in the present-day world.

Speaking on issues facing the conference, Qu Geping said: Various parties outlined their demands on environment and development, with the North and South expressing different ideas. The conference experienced difficult talks on three crucial topics—funds, technical transfer, and the creation of relevant agencies. Though developed countries made certain promises, the implementation of those written commitments is expected to encounter various difficulties and differing types of resistance. First, developed countries assumed different attitudes toward the supply of funds despite their recognition of the need for "new and additional funds." Inadequate funding will affect the development of cooperation in various fields as stipulated in "Agenda 21." Second, developed countries declined the request of developing countries for technical transfer on "preferential and noncommercial" terms, citing the need for protecting intellectual property rights. While repeated negotiations produced an agreement in principle to "preferential terms" on the part of developed countries, the conflicting needs of technical transfer and the protection of intellectual property rights had yet to be reconciled. Third, the North and South were sharply divided on matters pertaining to the creation of relevant agencies, such as the type of intergovernmental agencies to be established in the future, the functions of such agencies, and the type of mechanisms to administer funds needed for global environmental protection.

Qu Geping said: In developing its economy, China heeds the need for environmental protection and considers environmental protection and family planning to be its basic national policies. It has made unflagging efforts and achieved some success in this regard. The role played by China as a major environmental power in the UNCED has caught the attention of various parties.

While preparing for the conference, our country invited 41 developing countries to a ministerial-level conference on environment and development in Beijing. The conference issued the "Beijing Declaration," which has had an extensive impact. Our country actively participated in consultations of high-level officials during the conference. At the ministerial-level conference, State Councilor Song Jian expounded a five-point fundamental principle for establishing global partnership. The principle met with a favorable reception and good comment. Delegates from some West European and Nordic countries said that China had played a constructive role during the entire UNCED session.

Qu Geping said: The Chinese Government took the conference seriously. Premier Li Peng attended and delivered an important speech at the summit meeting of the conference. China explicitly stated its five-point position on strengthening international cooperation in environmental protection and development. The position was motivated by a desire to safeguard peace, to promote development, to advance the establishment of a fair and rational international order, and to look after the long-term interests of future generations. It attracted the close attention of the conferees and won general

acclaim in the international community. During the conference, Premier Li Peng held separate meetings and talks with leaders from over 20 countries. They discussed ways to ensure human survival and development, thoroughly exchanged views on major international issues of common interest and on the development of bilateral relations, and reached a wide-ranging consensus. This was conducive to the development of cooperation in environmental matters, development, and other international affairs, and helped promote bilateral relations between China and other countries.

Qu Geping stated: Leaders from developing countries spoke highly of our principled stand on upholding justice and on protecting the rights and interests of developing countries in carrying out the above-mentioned activities. They maintained that China, with a population of 1.1 billion, was a genuine force in the Third World. They expressed the hope that we would play a greater role in such major international issues as environmental protection and development, and praised China's cooperation with their countries as a model of South-South cooperation. Leaders from Western countries took our role seriously and signaled a desire to strengthen relations with us. Delegates from various countries expressed hopes for further developing relations with us in environmental and economic affairs and for exploring and opening up new fields of cooperation. The leaders of some countries said that China's implementation of a peaceful foreign policy and its adoption of a fair position on international affairs had afforded them a sense of security. This amply demonstrates China's growing international status, influence, and prestige.

In his briefing, Qu Geping also recounted our country's remarkable progress in environmental protection over the past decade or so.

The country has moved gradually to establish and improve its legal system for environmental protection. It has scored substantial gains in preventing and treating industrial pollution, achieved initial success in overall urban environmental protection, and increased investment in environmental protection. Besides, it has moved steadily to step up supervision and control, achieved tremendous success in tree-planting activities and afforestation, and made some progress in preserving nature. It has implemented family planning and worked hard to relieve demographic pressure on the environment.

Qu Geping said: During the course of development, we did not opt for the old practice of causing pollution first and treating it later. And we could not adopt the model of "high technology and high input" currently employed by developed countries. Instead, we adopted a distinctly Chinese strategy of environmental protection based on China's national conditions, limited input, and the primary means of improving environmental control. Our strategy elicited a positive appraisal from the international community. However, we must be keenly aware of our country's extremely acute environment, characterized by rather grave atmospheric pollution in the cities,

very serious water pollution, noise pollution in urban areas that is generally above legal levels, and the growing quantity of solid wastes. Some aspects of the ecology have deteriorated, resulting in soil erosion, shrinking arable land, degeneration of grassland, expanding desertification, declining species, and shortages of water resources. We must pay close attention to these factors that are unfavorable to economic and social development.

Qu Geping also gave a briefing on the responsibilities and obligations arising from the conference's documents and conventions and on our country's efforts to protect the environment and accelerate economic development.

Measures for Agricultural Development, Environment Outlined

HK2506050092 Beijing NONGMIN RIBAO in Chinese 2 Jun 92 pp 1, 4

[Article by Liu Zhongyi (0491 0022 0001): "Protect and Improve Agricultural Ecological Environment, Further Accelerate China's Agricultural Development"]

[Text] China is a developing country with a comparatively big proportion of agricultural economy. The population is big but the per capita possession of resources is small. This national condition determines that China's agriculture is restricted by its resources. The relations between agricultural development and environmental protection are close and neglecting one could produce a negative impact on the other. On the one hand, it is necessary to build a fine ecological environment to lay a foundation for the sustained and steady development of agricultural production; on the other, it is necessary to rationally exploit and utilize natural resources. The development of agricultural production also creates conditions for environmental production. If agricultural production is undeveloped and lacks the necessary economic force, it is impossible to properly protect the agricultural environment. When human beings do not have basic conditions for their existence, protecting the ecological environment will be empty talk. Poverty is apt to cause environmental destruction, thus forming a vicious cycle of resources, environment, and economy. Therefore rationally exploiting and utilizing natural resources, opening new agricultural production areas and industries, and developing agricultural production serve as powerful support for environmental protection work. Agricultural departments naturally become supporters of environmental protection and departments which actively practice environmental protection.

Since the beginning of the 1970's, the Chinese Government has regarded population control, rational utilization of resources, and environmental protection as basic state policies. It has made unremitting efforts to protect and improve the agricultural environment and taken a series of measures to coordinate agricultural development and protect the environment. These are mainly as follows:

1. It has set up a perfect system of policies, laws, and regulations. In line with the basic state policy of protecting the environment and taking the principle of coordinated development between economic construction and environmental protection as the norm, it has formed a comparatively complete agricultural environmental protection policy system, thus providing a reliable policy basis for agricultural environmental protection. To conform with these policies, we have also correspondingly built a system of laws and regulations on protecting agricultural natural resources and environment, under which there are explicit stipulations on the rational utilization of all kinds of natural resources and the prevention of agricultural environmental pollution and ecological destruction.

2. It has improved agricultural environmental management organs and strengthened management work. Strengthening environmental management is always the most effective mechanism which coordinates the relations between agricultural development and environmental protection, and this is determined by China's present economic development level. At present, an agricultural environmental management work system has initially taken shape in the entire country. Agricultural environmental management organs have been set up at the central, provincial, prefectural, and county levels. Townships (towns) have gradually carried out the environmental supervisory personnel system to exercise supervision and management over the agricultural environment. All levels of agricultural environmental management organs, in line with the existing agricultural environmental protection policies, laws, and regulations, exercise supervision and management over the pollution and destruction caused to the agricultural environment by agricultural production and operations, urban and rural industrial construction, and people's lives; they perform their management functions by economic, administrative, legal, propaganda, and educational means.

3. It has closely integrated rural economic construction with environmental construction and has actively promoted ecological agriculture. To promote rural economic development more properly, we have not passively resolved the environmental problems which have appeared, but we have also made hay before rain and closely integrated agricultural production and construction with environmental and ecological construction to enhance and improve overall agricultural environmental quality as expected. After many years of practice, we are of the opinion that developing ecological agriculture is an effective way to coordinate development and protection in China's rural areas.

4. It has conducted environmental monitoring and survey. In the mid-1970's, China began to build agricultural environmental monitoring organs, and now an agricultural environmental monitoring network has initially taken shape. Its main task is, in line with the relevant state legal provisions, regularly monitoring the

pollution entering the agricultural environment; surveying the development and changes in the agricultural ecological environment; appraising the quality and development trend of the agricultural environment. Through these surveys, the government has acquired a good knowledge of the country's agricultural environmental quality and development trend and has also set forth corresponding policies, thus providing a scientific basis for the state to formulate an agricultural development strategy.

The 1990's is a key decade for China to continue its agricultural and rural economic reforms and to lay down a solid foundation for long-term, stable development in the future. During this decade, China's comprehensive agricultural production capacity and results will be enhanced to a new level. For this reason, we must boldly face challenges and further coordinate the relations between agricultural development and environmental protection. Detailed measures to be taken are as follows:

1. Continue to carry out ecological agricultural construction. As a new production system for the coordinated development between agricultural production and environmental protection, ecological agriculture will be popularized extensively in China. In the Eighth Five-Year Plan, technologically mature ecological agricultural experimental zones suitable for extensive popularization will be built in the country's different selected regions in coordination with development and construction projects such as "agricultural regional development," the "transformation of medium- and low-yield fields," the "construction of commodity grain bases," and the "shopping basket project." In 1995, these experimental zones should cover 30 million mu of land and the popularization area should cover 100 million mu. In comparison with other types of zones, the resources use rates in ecological agricultural experimental zones are 5 to 10 percent higher, their systematic productive forces are 10 percent higher, and their grain growth rates are 7 to 15 percent higher. In the year 2000, the popularization area of ecological agriculture will reach 300 million mu.

2. Protect and rationally use agricultural natural resources and preserve the balance of agricultural ecology. There is a need to strictly control the occupation of land for nonagricultural purposes, such as for the construction of factories, mines, communications facilities, township and town enterprises, as well as urban and rural construction. It is necessary to observe natural and ecological laws in developing and using land resources and in adjusting the agricultural structure. The system of land fertility compensation and appropriate grazing on grasslands should be established. When reclaiming wastelands, enclosing beaches and shoals for cultivation, developing agricultural zones, and building commodity bases for agriculture, an appraisal of environmental influence should be made, management should be strengthened over the agricultural environment, and the unfavorable effects caused by various kinds of development and construction to the ecological environment should be controlled and prevented. In regions where

resources and ecological environments are seriously destroyed and agricultural environments are seriously polluted, it is necessary to set up comprehensive harnessing areas to carry out ecological restoration and environmental improvement.

3. Control the pollution caused by the "three wastes" of industry and cities to the agricultural environment. In accordance with the state authorization on monitoring and supervising the pollution caused by the "three wastes" of industry and cities to the agricultural environment, agricultural departments should adjust the structure, product mix, and technological structure of township and town enterprises to develop trades without pollution or with less pollution.

4. Rationally apply agriculture chemicals to prevent agricultural and animal husbandry products from being polluted. In coordination with the application of science and technology to agricultural invigoration, major efforts will be made to popularize the scientific application of agricultural chemicals and to exercise comprehensive prevention and cure of plant diseases, insect pests, as well as the harm caused by rats and weeds. During the Eighth Five-Year Plan, the country's biological prevention area will reach 500 million mu. It is necessary to popularize a pollution-free agricultural production technology, to rationally apply chemical fertilizers, to energetically develop organic fertilizers, and to take practical measures to popularize the method of leaving straw on the fields for refertilization.

5. Continue to improve the agricultural environmental monitoring network. During the Eighth Five-Year Plan, not only should we further improve the agricultural environmental monitoring network so that the existing monitoring stations will have certain monitoring capacities and perform routine monitoring, we should also gradually set up monitoring systems in fish breeding areas, pastoral areas, and cultivated areas to exercise monitoring over soil, crops, grasslands, water, fish breeding areas, as well as agricultural and animal husbandry products. On the basis of extensive monitoring, we should have an overall idea of agricultural environmental quality and its changing trend and build a data bank on nationwide agricultural environmental quality.

6. Build different types of natural preservation zones and strengthen the protection of biological diversity. A number of natural preservation zones should be built in the country with emphasis on protecting aquatic animals, wild animals, and the species of herbivorous rare animals on the verge of extinction, and we should strengthen the protection of biological diversity.

Zhejiang Appraised as China's 'Cleanest' Province

40101020C Beijing CHINA DAILY (Opinion)
in English 9 Jun 92 p 4

[Text] Hangzhou (Xinhua)—East China's Zhejiang Province was appraised as the cleanest province in

China during a recent nationwide environmental check by ecologists from the Chinese Academy of Sciences.

The scientists conducted an in-depth investigation of various factors affecting local environments in different parts of the country. They provided detailed assessments of natural resources, economic development, damage to the ecosystem, and pollution.

The scientists concluded the six most environmentally sound provinces were Zhejiang, Guangdong, Jiangsu, Fujian, Anhui and Shandong.

The experts attributed the achievements of Zhejiang during the past decade to the province's continuous efforts to protect and improve the environment. According to local authorities, the province has invested over one billion yuan (\$181 million) to curb industrial pollution and have attempted to improve the environment by harnessing rivers and undertaking massive afforestation programmes.

The province has achieved a high rate of economic growth and local rural industry has flourished over the past decade. Since coal has been the basic fuel used by local industries, coal consumption by the nine cities directly under the provincial government, the most important industrial bases in the province, was increased from six million tons in 1986 to over 10 million tons in 1991.

However, air monitoring results showed that the quality of the air of the nine cities had been raised during the period all the cities had taken measures to apply the national criteria for controlling enterprises' discharge of waste gas and cinder. All enterprises unable to meet the national criteria have been closed, technically updated or moved away from the urban area. Now these cities are sheltered by green trees, woods and lawns, thus being commended as "garden cities."

At the same time, the cities exerted great efforts to upgrade household heating and cooking systems and boilers, which were previously another major cause of air pollution.

To date, all nine cities have managed to control the discharge of waste gas and cinder in their urban areas, which cover 2.75 million square kilometres. This makes the province the first in the country to control the discharge of waste gas and cinder in all of its large and medium-sized cities.

The province has also conducted experimental environmental projects in more than 100 villages. The experiments carried out by the villages are known as "ecological agriculture," meaning the effective recycling of natural resources.

For example, in Shanglijia Village, Yinxian County, a methane generating pit was built to supply gas for cooking, heating and lighting. The waste materials remaining in the pit were then used to fertilize crops in place of chemical fertilizers.

The village has been cited by the United Nations as one of the "global 500" villages which has made special contributions to environmental protection. Representatives from the village will attend an awards ceremony held by the United Nations in Brazil this month.

In recent years, the province has greatly improved the water quality of its eight major rivers.

In order to ensure the cleanliness and water purity in the West Lake of Hangzhou city, one of the most famous tourist attractions in the country, the city carried out comprehensive water improvement projects. Some 30 kilometres of levees along the lake were repaired, and a 9.4-kilometre drainage pipeline system was built to prevent the city's waste water from flowing into the lake. In 1985, the city began construction of a channel to divert clean water from the Qiantang River into the lake.

Currently, the clarity of the water in the lake has risen to 55 centimetres as against 42 centimetres only a few years ago. International ecologists recently said that the environmental projects carried out around the lake have established an international benchmark for lake protection.

In addition, cities in the province have combined infrastructural construction with environmental protection, and have rebuilt many outdated neighborhoods, in addition to parks and green belts in downtown areas.

World Bank Supports Tianjin Environment, Infrastructure Projects

*OW2006033292 Beijing XINHUA in English
0248 GMT 20 Jun 92*

[Text] Washington, June 19 (XINHUA)—About nine million people will benefit from a World Bank-aided project to improve the environment and infrastructure in Tianjin of north China and its surrounding counties and districts, the World Bank said today.

A total of 100 million U.S. dollars in assistance will be received for the project from the International Development Association (IDA), a World Bank affiliate that lends on concessionary terms to developing countries.

Tianjin, the third largest city in China, has experienced many of the stresses associated with rapid urban and industrial growth throughout China, the World Bank said.

The project will strengthen the urban planning and management systems of the Tianjin municipal government in order to help it meet the challenges posed by urban development.

Technical assistance and training will be provided to improve techniques and procedures for monitoring infrastructure needs, evaluating and planning projects, and budgeting and management for the sector overall.

The project will also provide technical assistance to help develop solid waste disposal, public transport, and environmental monitoring and management systems.

A second component of the project will support investments for environmental sanitation and transportation to improve drainage, sewerage, solid waste management, roads, traffic management and public bus operations.

The project will also establish a fund for industrial pollution control, which will help industrial businesses finance investments to minimize polluting wastes.

Also approved on June 17 was an IDA credit of 15 million dollars that will support the reduction of pollution in Chinese and international waters through a ship waste disposal project.

Currently, an estimated 800,000 to 900,000 tons of ships waste is being discharged annually into coastal and international waters around China.

The project will help reduce this pollution through improved monitoring and analysis of the problem and the subsequent implementation of an appropriate policy, regulatory, and incentive framework.

The project will also provide the ports of Dalian, Tianjin, Shanghai, Ningbo, Xiamen and Guangzhou in China with the infrastructure necessary to receive and safely dispose of ship wastes.

Beijing Adopts Regulation on Preserving Water, Soil

*OW2106120492 Beijing XINHUA in English
1139 GMT 21 Jun 92*

[Text] Beijing, June 21 (XINHUA)—The 34th session of the Ninth Beijing Municipal People's Congress adopted a regulation on implementing China's law on water and soil preservation June 19.

The regulation includes six chapters and 39 articles. It stipulates that all units and individuals in the city have to take responsibility for the conservation of water and soil and the prevention of soil erosion.

The regulation also indicates that the preservation measures should focus on soil erosion prevention. In addition, it stipulates that the city should list the water and soil preservation tasks its social and economic development program and make overall plans for the comprehensive rectification of soil erosion control and water and soil conservation work more strictly.

According to Yan Yuanchang, director of the Beijing Water Resources Bureau, the nation's capital has serious soil erosion problems because of the geological conditions and continental weather.

Besides, more than 15 million tons of silt are deposited on the river banks and reservoirs of the city every year.

From 1978 to 1991 Beijing built projects to control soil erosion of 3,259 sq km.

Urban Greening Regulations Issued

OW2706223192 Beijing XINHUA Domestic Service
in Chinese 0238 GMT 27 Jun 92

["The Regulations on Urban Greening"]

[Text]

Chapter I. General Principles

Article 1. These regulations have been formulated to promote the development of urban greening undertakings, improve the ecosystem, beautify the living environment, and improve people's physical and mental health.

Article 2. These regulations are applicable to the planning, construction, protection, and management of urban greening, such as planting and maintaining trees, flowers, and grass in the planned areas of cities.

Article 3. The city people's governments should include urban greening projects into their programs for economic and social development.

Article 4. The state encourages and intensifies the scientific research into urban greening and popularizes advanced technology to raise the scientific, technological, and artistic levels of urban greening.

Article 5. Urban units and citizens who are able to work should plant trees and fulfill other duties for greening in accordance with relevant rules of the state.

Article 6. Units and individuals with outstanding achievements in the work of urban greening should be cited and awarded by people's governments.

Article 7. The State Council sets up an All-China Greening Committee to make unified arrangements and direct the greening work in urban and rural areas around the country. Its office is set up in the administrative department in charge of forestry under the State Council.

The administrative departments in charge of urban construction and forestry under the State Council divide their powers, in accordance with the stipulations of the State Council, to take charge of the greening projects around the country.

Local greening management systems should be worked out by provincial, autonomous regional, and municipal people's governments according to the practical situations in the localities.

The administrative departments in charge of urban greening under city people's governments are responsible for the greening projects of the planned areas within their respective administrative divisions.

In the planned areas of cities, the greening projects which should be run by the administrative departments in

charge of forestry and others, as stipulated in relevant laws and regulations, should be carried out according to relevant laws and regulations.

Chapter II. Planning and Construction

Article 8. City people's governments should organize administrative departments in charge of urban planning and urban greening to jointly work out programs for urban greening and include them into general programs of their cities.

Article 9. The planning for urban greening should take actual situations and the needs of urban development into consideration in determining a rational area for urban greening that conforms to the population and area of the city.

The per capita share of public park space and percentage of green cover in urban areas and other indicators for the planning should be set by the administrative department in charge of urban construction under the State Council, in accordance with each city's quality, scale, natural conditions, and other practical situations.

Article 10. The planning for urban greening should be made in accordance with the traits of each locality and take the advantage of its original topography, landforms, water body, vegetation, historical and cultural ruins, and others natural and human conditions to rationally set up public parks, parks around housing areas, protection parks, production parks, and scenic forests, with a view to offering convenience to the people.

Article 11. The designing of urban greening projects should be entrusted to designing units with relevant credentials.

When an appurtenant design scheme for a greening construction project is undergoing examination for approval according to the procedure for capital construction, the administrative department in charge of urban greening under the city people's government must take part in the examination.

The design schemes for urban public parks, parks around housing areas, scenic forests, greenbelts along arteries of traffic, and other greening projects must be presented to the administrative department in charge of urban greening under the city people's government or its higher authorities for examination and approval, according to stipulations.

Construction units must conduct their work in accordance with the approved design schemes. Should the design schemes need to be revised, they should be examined and approved by the original organs that approve them.

Article 12. In drawing up designs for urban greening projects, it is necessary to draw on advanced experiences at home and abroad and embody national styles and local characteristics. In building public parks in cities and in residential areas, priority shall be given to

improving the scenery by planting trees, flowers, and grass which are suitable to local conditions. In addition, other scenic things, such as fountains, rock, and sculptures are to be properly distributed.

Article 13. In drawing up urban greening projects, different types of shelter belts shall be planned according to local conditions. Various units concerned shall be responsible for the building of shelter belts in their respective administrative zones in accordance with relevant state regulations.

Article 14. A unit shall be responsible for the planning and construction of its own park. The department in charge of urban greening under a city people's government shall check and supervise the construction and provide the unit with technical guidance.

Article 15. In setting up plant nurseries, flower nurseries, and grass nurseries in urban areas, care is to be taken that they meet the needs of urban greening projects.

Article 16. The construction of urban greening projects shall be undertaken by qualified units. After a project is completed, it must be checked and accepted by the city people's government's department in charge of urban greening, or the department in charge of the project before it is handed over to the relevant unit for use.

Article 17. In case greening work is needed for urban new projects, expansion or renovation projects, and housing projects, a supplementary investment for greening work is to be included in the city's capital construction investment, and construction of the greening project and the other projects shall be arranged in a unified way. The greening task must be completed within a fixed period of time.

Chapter III. Protection and Management

Article 18. Departments in charge of urban greening and city people's governments shall be responsible for the management of greening work in urban public parks, scenic wooded areas, shelter belts, and along roads and main highways; a unit shall be responsible for the management of greening work in the shelter belts in the area under its jurisdiction in accordance with relevant state regulations; a unit shall be responsible for the management of greening work in its own gardens and parks it has built; greening work in residential parks shall be managed by units authorized according to practical conditions by departments in charge of greening under city people's governments; city plant nurseries, grass nurseries, and flower nurseries shall be managed by the units operating them.

Article 19. No unit or individual is allowed to arbitrarily alter the nature of the land set aside for urban greening projects or to destroy the topography, appearance, water bodies, and vegetation of the land set aside for greening projects.

Article 20. No unit or individual is allowed to arbitrarily use the land set aside for urban greening work; unauthorized use of such land must be returned within a prescribed period of time.

In case the land set aside for urban greening work is to be used on a temporary basis because of construction needs or other special reasons, the approval of the relevant city people's government's department in charge of urban greening work must be obtained. Application for the temporary use of such land must be filed in accordance with the relevant provisions.

Article 21. No unit or individual is allowed to damage city trees, flowers, grass, and greening facilities.

Felling trees in an urban area must be approved by the relevant city people's government's department in charge of urban greening work. After trees are felled, replanting or other remedial measures shall be taken in accordance with state regulations.

Article 22. A person who wishes to set up a commercial establishment or a service stall in a city public park must apply with the unit in charge of the park. With the approval of the department in charge of urban greening work under the city people's government or an authorized unit, he or she may, after obtaining a business license from an industrial and commercial administrative department, engage in business activities in a locality assigned by the public park administrative unit. He or she must abide by the regulations of the park and the industrial and commercial administrative department.

Article 23. Units in charge of city parks shall establish and perfect a management system to maintain a lush growth of trees and grass and to make sure greening facilities are in good condition.

Article 24. In case it is necessary to trim trees to ensure the safe use of pipelines and power lines, the approval of the department in charge of urban greening under a city people's government must be obtained. Trimming is to proceed in accordance with the principle of taking into account both the safe use of pipelines and power lines and the normal growth of trees. City people's governments shall prescribe the method of sharing expenses for the trimming of trees.

In case when the tilting of a tree due to irresistible forces is endangering the safety of a pipeline and a power line, the units in charge of a pipeline or a power line may trim the tree, erect it, or fell it, but they must immediately report to the relevant department in charge of urban greening under a city people's government or the unit in charge of a park.

Article 25. Trees over 100 years old, rare trees, valuable trees, and trees of historical value or with commemorative significance are grouped under the category of well-known ancient trees.

Well-known ancient trees in urban areas shall be managed under a unified plan and maintained through a division of labor. Departments in charge of urban greening under city people's governments shall set up a file for well-known ancient trees, mark these trees, define the protection scope, and strengthen maintenance and management work. Well-known ancient trees in a locality under the jurisdiction of a unit or in the yard of an individual shall be maintained by the unit or the individual. The relevant city people's government's department in charge of urban greening shall exercise supervision and provide technical guidance in this regard.

Felling and relocation of well-known ancient trees are strictly prohibited. If a well-known ancient tree is to be relocated due to special reasons, the matter must be examined and endorsed by a department in charge of urban greening under a city people's government, and reported to a people's government at the same level or higher for approval.

Chapter IV. Penalty Rules

Article 26. Regarding the design for a greening project affiliated with a construction project or the design for the greening of an urban public park, residential park, scenic wooded area, and shelter belts along main highways, if they have not been approved or if construction is being undertaken in violation of the approved design, the department in charge of urban greening under a city people's government shall order the suspension of construction, set a deadline for the design to be corrected, or take other remedial measures.

Article 27. With respect to a unit or individual who commits one of the following acts in violation of the regulations, the department in charge of urban greening under a city people's government or an authorized unit shall order the unit or individual to stop making further inroads and may impose a fine as a penalty; those who cause losses shall be responsible for compensation; those who deserve punishment shall be dealt with in accordance with the relevant provisions of the Regulations of the PRC on Administrative Penalties for Public Security; those who commit a crime shall be made accountable according to law.

1. Those who damage trees, flowers, and grass in urban areas;
2. Those who arbitrarily trim or fell trees in urban areas;
3. Those who fell, arbitrarily relocate well-known ancient trees or cause them to be damaged or to die due to poor maintenance; and
4. Those who damage urban greening facilities.

Article 28. Where a unit or an individual who arbitrarily uses land for urban greening without authorization, the department in charge of urban greening under a city

people's government shall order the unit or the individual to return the land and restore it to its original shape within a prescribed period of time and may also impose a fine as a penalty; those who cause damage shall be made responsible for compensation.

Article 29. Anyone who opens a shop or service stall in an urban public park without authorization shall be ordered by the department in charge of urban greening under a city people's government or an authorized unit to remove or dismantle the structure. Fines may be imposed in this case. Those who cause damage shall be made responsible for compensation.

The department in charge of urban greening under a city people's government or an authorized unit shall issue a warning to commercial establishments and service stalls which refuse to abide by the rules of a public park administrative unit, and may impose fines in this case as a penalty; where the circumstances are serious, the department in charge of urban greening shall revoke documents approving their application and may ask an industrial and commercial administrative organ to revoke their business licenses.

Article 30. Direct responsible persons or the responsible person of a unit who violate the regulations shall be given an administrative punishment by their unit or by an administrative department of a higher level; those who commit a crime shall be made accountable according to law.

Article 31. Should the functionaries of the departments in charge of urban greening under city people's governments and of urban public park administrative units neglect their duties and abuse their power to seek personal gain, they shall be given an administrative punishment by their unit or an administrative department of a higher level; those who commit a serious crime shall be made accountable according to law.

Article 32. If the party involved does not agree with the administrative penalty, it may, within 15 days after receiving the penalty decision, request a review by appealing to an organ one level higher than the organ that made the penalty decision; if it does not agree with the review decision, it may appeal to a people's court within 15 days after receiving the decision. The party involved may also directly appeal to a people's court. If the party involved does not file for a review, does not appeal to a people's court, and does not carry out the penalty decision after the deadline is passed, the organ that made the decision may ask a people's court to forcibly execute the decision.

Those who do not agree with administrative penalties for public security shall be dealt with in accordance with the provisions of the Regulations of the PRC on Administrative Penalties for Public Security.

Chapter V. Supplementary Articles

Article 33. The people's governments of provinces, autonomous regions, and municipalities directly under the central government may draw up implementation rules based on the regulations.

Article 34. The regulations will go into force on 1 August 1992.

Minister Says New Law To Ensure More Urban Afforestation

HK3006014092 Beijing CHINA DAILY in English
30 Jun 92 p 1

[By staff reporter Wang Yonghong: "Afforestation in Urban Areas Will Speed Up"]

[Text] All trees, flowers and grasses in Chinese cities will be officially protected by law from August 1, the country's Minister of Construction declared in Beijing yesterday.

The move follows the introduction of the newly-drafted Regulations on Urban Afforestation.

The Regulations, the first of their kind in China, were drawn up by the Ministry of Construction and approved by the State Council.

"It is of great importance and will effectively improve and promote urban afforestation in our country," said Hou Jie, Minister of Construction and the Vice-Chairman of China's National Afforestation Commission, at a meeting on the publicizing and implementing of the regulations held yesterday.

According to the regulations, any person or unit which occupies afforested land, destroys plants and afforesting materials, without official approval, will be fined or punished according to law.

All units are asked to be responsible to afforest the surrounding land, with units failing to do this being punished. Urban afforestation is viewed as being one of the most important parts of public administration and environmental construction for towns and cities. Experts say it should coincide with ongoing urban construction and development, which are accelerating following the recent surge in reform and the opening-up drive.

"It is also an essential part of the nationwide afforestation campaign," said Hou.

Although the standard set for per capita share of public afforested land by the afforestation plan during the Seventh Five-Year Plan period has been met, the differences among the cities in various areas are very great, with cities in South China enjoying a higher coverage rate thanks to their milder climate, according to Hou.

China has decided to achieve complete urban afforestation with the per capita share of public afforested land reaching seven square metres by the year 2000.

The diversity of afforestation will also be furthered, by planting more climbing plants and by scattering plants on roofs and balconies.

The investment in urban afforestation is increasing yearly and 1.6 billion yuan (\$290 million) was used during the Seventh Five-Year Plan period, compared to only 849 million yuan (\$154 million) used in the Sixth Five-Year Plan period.

More money will be invested over the coming years, said Hou.

Besides the investment, the regulations on urban afforestation is another way to promote greener cities and encourage urban residents and units to afforest and treasure trees, flowers and grasses.

Government Plans Tax on Sulfur Oxide Emissions

OW2706081392 Tokyo KYODO in English 0743 GMT
27 Jun 92

[Text] Beijing, June 27 (KYODO)—China plans to tax acid rain-causing sulfur oxide emissions from power generation plants and other facilities, a senior government official says.

Beijing hopes to curb emissions of the gas through the environment tax, said Xia Kunbao, director of the Foreign Affairs Office of the State Environmental Protection Bureau, in an interview with KYODO NEWS SERVICE on Friday.

With recent economic reforms spawning economic development in China, emissions of sulfur oxide from coal-burning power plants and factories have jumped sharply.

Scientists say sulfur oxide emitted into the air turns to sulfuric acid and is a major cause of the acid rain from China that kills trees and plants and inflicts other environmental damage not only in China but as far away as Japan.

The Chinese Government is expected to use funds raised by the tax to help install desulfurizers at sulfur oxide-emitting facilities nationwide.

Xia said the government is working on legislative aspects of the new tax and plans to formally introduce it soon.

In an initial trial stage, the government will choose one city for the environment tax, gradually levying the tax on all power stations and factories in the area, he said.

If the tax proves effective in curbing sulfur oxide emissions, Xia said, the government will expand the program nationwide.

The Energy Ministry's Environmental Safety Protection Division said the sulfur oxide tax may force prices up by raising the cost of producing electricity and various goods.

But the ministry said China will put priority on environmental protection even if the tax indirectly increases the economic burden on people.

The environmental tax will expand upon the current system, in which the government imposes penalties on facilities that exceed certain standards for emitting pollutants, the ministry said.

China's sulfur oxide emissions amount to 16.22 million tons a year—16 to 17 times those in Japan—with about one-fourth coming from coal-burning power stations, the government said.

The new tax will not cover emissions of nitrogen oxide.

Large Thermal Generating Unit Begins Operations

OW3006165592 Beijing XINHUA in English
1504 GMT 30 Jun 92

[Text] Taiyuan, June 30 (XINHUA)—Installation of China's first 500,000 kw [kilowatt] thermal generating unit has been completed, and the unit began to generate electricity at the Shentou No. 2 Power Plant in Shanxi Province today.

The unit has a planned generating capacity of 2.2 million kw and was manufactured in Czechoslovakia, according to local officials.

Experts say that the installation and operation of the unit indicates that China's construction of power stations for coal mine electricity supply has reached the world advanced level.

Shanxi has rich reserves of coal.

By last year the province had generating units with a total generating capacity of 6.5712 million kw. They generated 34.09 billion kwh [kilowatt hours] of electricity last year.

The officials added that it is expected that by the end of this year the province will have more generating units, adding 1.3 million kw of generating capacity.

ADB Provides Technical Assistance for Global Climate Strategy

OW0407134092 Beijing XINHUA in English
1312 GMT 4 Jul 92

[Text] Manila, July 4 (XINHUA)—The Manila-based Asian Development Bank has approved a technical assistance grant of 600,000 U.S. dollars to China to formulate a national strategy for global climate change.

This technical assistance will be finalized from the Japan special fund.

The primary objective of the technical assistance is to assist China in formulating a national response strategy for global climate change by assessing present and future emissions of greenhouse gases, identifying and evaluating greenhouse gas reduction measures and carrying out a macroeconomic analysis of selected major policy options.

The technical assistance will identify short-and long-term measures needed to reduce emissions of carbon dioxide and other greenhouse gases in various sectors and evaluate the effectiveness of the proposed measures.

The executive agency for the technical assistance will be the department of science and technology for social development of the State Science and Technology Commission.

Researchers Warn of Sinking Coastal Regions

OW0707134192 Beijing XINHUA in English
1257 GMT 7 Jul 92

[Text] Beijing, July 7 (XINHUA)—The sea level off China's coastline rises 2 to 3 mm a year, according to the State Bureau of Survey and Mapping.

"But the coastal regions are sinking more quickly due to the overexploitation of underground water and other factors," a spokesman from the bureau told reporters here today.

Based on data collected from the nine tidal stations along China's coastline, Chinese researchers have found that over the past 100 years the sea level along the coast of the East China and South China Seas has risen 19 cm and 20 cm, respectively.

Analyzing the data collected by the 102 tidal stations throughout the world, Chinese researchers have also found that the global sea level has risen by an average of 15 cm in the same period, with the Atlantic rising 29 cm, the Pacific, 10 cm and the Indian Ocean 39 cm.

The researchers warned that the rise has a great environmental impact on China's coastal regions. Large areas around the coastal city of Tianjin, the Laizhou Gulf in Shandong Province, and the Yangtze and Pearl River deltas have sunk significantly.

For example, Tianjin sank 80 mm, 64 mm, and 43 mm in 1985, 1986, and 1987, respectively. And the Xingang port near Tianjin sank 0.5 m between 1966 and 1985. Scientists warn that such a phenomenon could lead to progressive salinization of the soil in coastal areas.

REGIONAL AFFAIRS

PRC Official Warns of Rising Level of South China Sea

OW3006113292 Tokyo KYODO in English 0706 GMT
30 Jun 92

[Text] Jogjakarta, Indonesia, June 30 (KYODO)—Global warming, accelerated by rising levels green house gasses, is estimated to have caused the South China Sea to rise 20 centimeters over the past 100 years, a Chinese official said Tuesday.

The rise is higher than the average rise in the world sea level, which has risen 15 centimeters in the same span of time, Wu Yilin, deputy chief of the China's State Oceanic Administration's Marine Forecast, told an international conference on the littoral region.

He said that if the rise in the sea level of the South China Sea continues it will have an adverse impact on the area.

"It will not only inundate islands (in the area), unbalance natural values and the ecological environment but also increase the frequency and severity of storms," he said.

He spoke on the second day of the four-day conference which was opened Monday by Indonesian Foreign Minister Ali Alatas.

Wu said those estimates are based on the recent findings of a Chinese Government panel on climate change.

The conference, whose agenda covers various issues including resource management, navigation, environment and political issues, is the third of its kind. Ten countries from the area surrounding the South China Sea are participating.

Six countries are pursuing sovereignty and jurisdictional claims on most or some of the islands, atolls, and reefs of Spratlys and Paracels, namely China, Vietnam, the Philippines, Malaysia, Brunei, and Taiwan.

The other four countries, Thailand, Laos, Singapore, and Indonesia, do not lay claim on the area, which is believed to be rich in oil and gas.

Control over the spratlys and paracels, which straddle the Indian Ocean near the Strait of Malacca, means control of the some of the busiest waterways in the world.

Sea lanes in the area link Japan and other Asian countries to the oil of the Persian Gulf.

CAMBODIA

Report for UNCED Reviews State of Nation's Environment

92WN06244 Bangkok THE NATION in English
19 May 92 p c1

[Article by John Laird: "Cambodia's Green War"]

[Excerpts] Since the devastated country lacks the capacity to protect the environment, the experts are calling for urgent measures from the international community.

They recommend a trust fund of at least U.S.\$50 million to initiate emergency action, and the establishment of a five-man Cambodia Environmental Advisory Team to screen foreign aid and investment proposals.

The warnings and recommendations are contained in Cambodia's recently- completed country report to the Earth Summit, the U.N. Conference on Environment and Development [UNCED] to be held in Rio de Janeiro next month. The report was prepared by environmental consultants John Dennis and Gregory Woodsworth who submitted the United Nations Development Programme (UNDP) in Phnom Penh.

The consultants envisage that "ecotourism" might eventually form a dominant portion of Cambodia's economy, linking tourism to conservation of the natural environment. They also suggest a moratorium on export-oriented logging.

Much of the environmental degradation identified by their report, and by various international aid officials in Phnom Penh, is linked to rapid deforestation.

The silting up of the Tonle Sap (Great Lake) is another serious and related problem.

One senior NGO [Nongovernment Organization] official who has travelled extensively around Cambodia earlier told this writer that huge trucks with logs can be seen all around the country. Foreign businessmen have started deforestation on a large scale, he said. "They will create an ecological disaster here soon."

Woodsworth wrote in a study released last August that the last comprehensive forest inventory conducted by aerial survey from 1958-60 found that 13.2 million ha (hectares), or 73 percent of the country, was forested. Since then, accurate information has been hard to get, but the U.N. Food and Agriculture Organization's global forestry survey of 1990 estimated that only 4.4 million ha of closed forest and 1.8 million ha of semi-closed forest remained.

Dr. Mok Mareth, chairman of the State of Cambodia's National Environment Committee and vice-minister of Agriculture, is hoping that Cambodia's neighbours, including Thailand, will extend cooperation to halt the flow of illegally-felled logs across Cambodia's frontiers.

"Up to now, we have stopped some illegal logging around the Vietnamese border, but along the Lao border we have not had a very good result because there are so many tracks there," Mok Mareth said in an interview in Phnom Penh.

In early February, the Vietnamese authorities responded to Cambodian requests by issuing a directive forbidding the Vietnamese to take vehicles into the border areas opposite Cambodian forests, Mok Mareth said. "Right now, it seems that the situation is getting better."

Mok Mareth also invited the governors of adjacent provinces in Laos to visit Phnom Penh to discuss solutions.

While trying to solve the problems of illegal logging, however, the government—facing shortages of building materials and foreign currency—has found it expedient to raise the officially allowed cut of timber. In addition, a Japanese company recently opened a sawmill with a U.S.\$5.5 million investment on the outskirts of Phnom Penh.

According to Mok Mareth, the government this year increased the maximum annual allowed cut from 300,000 cum (cubic metres) of timber to 400,000 cum. In 1991, more than 130,000 cum was exported, not counting a large, undetermined amount of timber crossing the Thai border.

But regional demand for timber particularly from Thailand, Vietnam and Japan, according to the Cambodia country report, may raise Cambodian timber exports as high as 1.2 million cum in 1992, or an estimated .5 to 5 times above the sustainable yield.

Logging companies from at least eight countries have been considering concessions in Cambodia, but Department of Forestry officials indicated that by early last month, signed contracts existed only for companies from France, Thailand and Indonesia totaling 145,000 cum, with another 175,000 cum of contracts pending, the country report says.

Some areas traditionally protected as nature reserves have been leased as timber concessions.

"According to one official," says the report, "the best forests will be consumed within five years. Forest destruction threatens the productivity of agriculture and fisheries as well; in short, the very sustainability of economic development in Cambodia."

A moratorium on export-oriented logging may be needed to prevent further watershed degradation and flash floods such as those which occurred last August and caused an estimated U.S.\$150 million damage in central Cambodia, it says.

The proposed U.S.\$50 million environment fund for Cambodia would focus particularly on community-oriented environmental protection and enable donor agencies to fund labour-intensive projects including

reforestation, a forest guard corps, a fishery reserve corps, erosion control and maintenance of management structures.

It would also assist Cambodians to establish a National Protected Area and Forest Reserve System covering a recommended 25 percent of national surface area.

Training and recruitment of Cambodian professionals are seen as urgent priorities.

If the environmental and resource-use challenges are not met, rural Cambodians stand to suffer most.

"The quality of life of rural Cambodians is closely dependent on the quality of rural environments and their right of access to its resources. The residents of many rural communities risk being marginalized as outside companies are given direct control over natural resources that for many years have been the property of the state, but which have traditionally been maintained with a high degree of local stewardship," notes the report.

In the earlier interview, Mok Mareth welcomed UN cooperation in staff training and proposals to revive the forest guardians of former times. Presently there are fewer than 300 trained foresters, most of whom work in Phnom Penh.

"We must prevent illegal logging and slash-and-burn practices. We want to establish social forestry; this way we can include degraded forests and reintroduce valuable species. I have had many contacts for this purpose with experts. We need assistance for plantations and reforestation," said Mok Mareth.

He was also seeking international collaboration to develop a programme to counteract slash-and-burn destruction of forests, to reorganise the forestry system, to set up protected areas and commercial forests, and to strengthen the national parks administration.

The government earlier set up a tree planting programme, but it could plant only 3,500 ha for the whole country over five years.

The demobilization of troops and return of refugees is seen as posing an added threat to Cambodia's forests and fertile wetland areas.

With some 150,000 troops and guerrillas facing demobilization with meagre prospects for immediate employment, the international donor community should also consider mounting massive tree-planting schemes.

Deforestation and resulting soil erosion is also compounded by another problem: the silting up of the Tonle Sap, a phenomenon which has been documented for 30 years.

The lake is a reservoir for the Tibetan Plateau snow melt which surges down the Mekong River each year and backs up into the lake, greatly expanding it. As siltation

continues to make the lake shallower, annual flooding will affect greater areas of Cambodia.

This seems already to be happening. Cambodians note that Kmpong Speu Province, bordering on Phnom Penh, suffered flooding last year for the first time in memory.

Siltation, among other things, is also being blamed for a decline in the amount of fish captured since the late 1930s. Fish is an important source of protein in the Cambodian diet, making up about 70 percent of total protein intake, wrote Woodsworth in his August report.

Another important ecosystem needing attention is Cambodia's so-called "flooded forest," covering swamp areas around the Tonle Sap and in Cambodia's lower Mekong basin. It affords protection against siltation and can also be a fish habitat, according to Mok Mareth.

But 40 percent of the flooded forest has been lost to deforestation for fuelwood. Establishing fuelwood plantations would take much of the pressure off the remaining flooded forests, he said.

Other important environmental issues remain.

"The broader issues of habitat preservation and biodiversity are simply not priority issues at the present time, either within the government or among the aid agencies, though they are identified as issues of concern," wrote Woodsworth.

Cambodia's national reconciliation body, the Supreme National Council (SNC), may wish to ask the United Nations Transitional Authority in Cambodia (Untac) and the other U.N. agencies to programme their assistance in "sustainability-friendly" ways, recommend Dennis and Woodsworth in a preface to the Cambodia country report.

Independent Studies Offer Conflicting Views on Logging Issue

92WN0624B Bangkok *THE NATION* in English
2 Jun 92 p b12

[Article by Gary Van Zuylen: "Dispute Grows Over Logging in Cambodia; Controversial ACR Report Finds Fault With UNDP Conclusions on Logging"]

[Text] Findings from separate reports give conflicting views on Cambodia's ability to maintain an environmentally sound logging industry. One report maintains that the depletion should stop now. However, the other one suggests that the forests can easily sustain commercial activities and benefit the economy.

Both reports were compiled and released by independent consultants. The U.N. Development Programme (UNDP) report commissioned for tabling at the upcoming Earth Summit in Rio De Janeiro says the forests are already under severe attack from foreign loggers. But another study put together by Australian

Catholic Relief [ACR] to define timber resources for the possible aim of attracting foreign aid concludes that forest resources are abundant and exploitation should be pushed ahead once training programmes for officials are complete.

"My report takes into consideration the economic well-being of the Cambodian people," says the writer of the ACR report. While reluctant to reveal his identity, he has had 40 years experience in the Asia-Pacific region and has been a consultant to six governments, including the Thais and the Nepalese. Critics, however, note that these two countries have managed their forest resources quite poorly.

In a thinly-veiled reference to the UNDP, he added that with properly administered guidelines, which are well within existing capabilities, timber should form the basis for their much needed exports over the next decade. Then again, there have been few, if any cases, of developing countries being able to properly administer their forests.

"Logging is definitely a source of foreign exchange," the writer said. "After 10 years, the tourism sector should be able to take the lead so logging could be scaled down in line with a proposed master plan."

But the experience in many other tropical countries has been that once vested interests gain money and power through logging, they tend to keep on logging despite harmful side effects, such as soil loss and increasing drought. Thus, while timber companies do indeed reap rich rewards from logging, poor farmers are left to deal with the environmental consequences.

The ACR report details both the quality and quantity of commercial forests, comparing findings from a 1965 forest resource assessment to the Mekong Secretariat's 1991 land use classification maps from 1988 and 1989 satellite imaging. In a nutshell, it says that the forest cover has in fact increased over the last two decades as it has effectively been "locked up." The writer says that "vast amounts of timber well appreciated by the Asian market exist and are strong sources of immediate revenue."

It claims that forests cover 75 percent of the land area in Cambodia. But as in all estimates of this type, classifications of what constitutes a forest can largely alter this figure.

Area in hectares is tabulated at 13.8 million, up from the 13.2 million in 1965. Commercial forests, that is dense and semi-dense evergreens, pine and deciduous, total 10.7 million hectares. All this, says the report, means that Cambodia has approximately 500 million cubic metres of timber reserves of high quality.

The ACR report also claims that logging at present runs to around 400,000 cubic metres per year with half going to Vietnam and the last split between Thailand and Laos. Sawn timber actually exported out of Phnom Penh is less

than 50,000 cubic metres as the country has only one well-equipped saw mill in the capital.

However, the total consumption of timber in the country is growing with the demand for wood and charcoal increasing. The report says that the Department of Forests estimates that the use of these two equalled 120,000 cubic metres per year from 1987 to 1990.

Some reports, including the UNDP, stated that logging could be going on at a current rate of 1.0 million cubic metres per year. The ACR consultant claims there is no evidence to support this. At that rate, he said it would take 50 years to deplete the reserves by 10 percent, if one accepts his figures.

"After all, Thailand has less than 28 percent coverage and while that is a drastic change on what it once was, it is still workable," he said. But critics—who blame large-scale deforestation for devastating landslides in the South, decreasing crop yields and increasing drought in the Northeast, and siltation of dam reservoirs—question his definition of 'workable'.

The ACR report does mention that certain minor forest types and areas have suffered serious losses. The one highlighted was the pine forest at Kirirom and alarm bells should be sounded if logging there continues at its present scale which would endanger the area's status with just a 30 to 40 years resource supply.

The mangrove community was also said to be in a depleted state. Much had been cleared for agricultural purposes but it was considered that both mangrove and rear mangrove forests were reconcilable.

Market values for exported sawn timber were said to be as high as U.S.\$1,800 per cubic metre. Although these values apply to only a minority of the forest resources, known as luxury class, it is an indication of the locked up wealth. But the writer added that most of the timber is in the first class category which would mean that even these species are worth \$1,000 per cubic metre at present rates.

Other factors influencing the values are the sizes and broad beam types with no defects are well suited to plywood and heavy structural timbers. Apparently, these prices are already being charged by the government from buyers who represent end users in Japan and Thailand.

In its executive summary, the report says that the problems facing the Cambodian forests are similar to those which all tropical countries faced in the last half century. The loss of cadres, whose experience reached back to 1898, the current lack of skilled and experienced manpower, the shortage of training and general facilities, the lack of finance and the desperate need for national reconstruction in as short a time as possible are the main drawbacks. But it states that the resolution of the dilemma is totally within our capability.

Priorities lie in the rebuilding of the forest administration cadre and two suggestions are made. The first one is to augment training resources at the Forest Faculty and

to extend graduations to 60 officers every year. The second is to commission experienced and discharged military personnel to the forests after a short and intensive education, possibly by foreign experts. This approach has already had a positive response from the government.

Enhancing supervisory capabilities should be done by reverting to the previous single line Ministry-Department structure administered through regional inspectorates. Included in this should be a department of wildlife conservation which should be linked to the tourism sector.

Other priorities are to regain field control over the 172 reserves and to assess their present conditions. Forest resource information must be available and detailed air/ground surveys should be implemented in the dense forests northwest of the Mekong together with interpretative studies of previously done research projects.

The report says that the preservation of the environment is of essential importance not just because of the ecological balance but also due to the increasing nature of donor countries determining aid assistance with respect to a recipient's policy on conservation.

Twenty recommendations are given along structural, forest management, social, silviculture and development guidelines. At the government end these include forming a forest and wildlife ministry and a Cambodian forest research and management institute. The aims of these are to heighten awareness and to strengthen training facilities at both officer and technician levels.

Urgently needed overviews and inventories of forest resources through mapping must be completed by concentrating on forest types. Further work should centre around the watershed and catchment areas in Kamchay, Prek Thnot, Boeul, Battambang, Stung Chinit, Kirirom and Sirem Reap.

Other recommendations are for social forestry programmes to be implemented at the village level. Other species should also be planted to further industrial plantation techniques. Orchards should be planted while seed banks must be established in order to eventually reforest the denuded land.

Environmental impact statements must be prepared before approving the substantial development of forest industries processing more than 10,000 cubic metres per year and forest plantations of more than 5,000 hectares.

Funcinpec Bans Logging in Northern Areas

BK2706030192 Bangkok *THE NATION* in English
27 Jun 92 p.A2

[Excerpt] The Cambodian resistance faction loyal to Prince Norodom Sihanouk has banned logging in its area or control in the northern part of the country.

A statement from Funcinpec said the party had taken into account "the very grave situation resulting from, heavy logging everywhere in Cambodia which may cause ... a dramatic change in the weather conditions and environment of Cambodia and lead to catastrophic soil erosion in the country."

It said Prince Sihanouk had spoken about the environmental issues in his speech to the Earth Summit on the environment in Rio de Janeiro early this month.

In the spirit of saving the environment and the reconstruction of the nation, Funcinpec then decided to ban logging in the provinces under its control, said the statement.

It added that the group will cease cutting and forbid all exports of timber from these provinces and will begin to implement a reforestation programme.

Funcinpec also urged the three other Cambodian parties to take steps on environmental protection and the reconstruction of the country which has faced more than two decades of war.

Cambodia, Laos and Burma have become the main source of timber and forestry products for Thailand since the Chachai Chunhawan administration banned nationwide logging concessions as a result of natural calamities in mid-1989.

INDONESIA

President Suharto Urges Conservation of Energy Sources

BK0907105592 Jakarta ANTARA in English 1017 GMT 9 Jul 92

[Text] Bengkulu, July 09 (EARTH WIRE/ANTARA)—President Suharto appealed to the people on Thursday to help conserve the country's energy sources in their day-to-day life, asking them to make energy conservation a part of national development in Indonesia.

The president made the appeal when inaugurating various development projects in Tes Village, Rejanglebong Regency, Bengkulu.

Suharto said that energy should be used efficiently in the production and transportation sectors as well as in household activities.

To date the use of energy has been very inefficient, the head of state said.

We consume too much energy for unproductive activities, he said adding that Indonesia is rich in natural resources but is also a big population which has high energy demands.

If the natural resources are not properly used, they may not be adequate to support life in the nation, the president reminded.

Natural resources should therefore be managed effectively and efficiently by preserving renewable resources and conservative use of unrennewable ones.

Efficiency and effectiveness should become an aim for all efforts to utilize natural resources for development so that the resources can be used for as long as possible and provide the biggest possible advantage, Suharto said.

According to the president, the need for energy, particularly electricity increases drastically in line with growth in industries and the increasing welfare of the people.

He said the need for energy in the future will therefore increase very rapidly.

The government alone cannot meet the people's need for energy. For this reason, the government is opening up big opportunities for the private sector to take part in the development of power plants.

Because power projects need large investments the government has issued a special regulation governing private investment in power projects. The government has also issued special regulations on the utilisation of geothermal energy as energy sources for power plants.

While in Bengkulu, the president simultaneously inaugurated a number of development projects which include the Tes hydro electric power plant and its transmission network from Tes to Bengkulu, a transmission network project from Bukit Asam to Baturaja, Kota Bumi and Bandar Lampung, a rural electricity project to supply electricity to 173 villages in 33 districts within the Bengkulu province, a crumb rubber factory run by the state plantation corporation XXIII and a fishing port on Baai Island.

According to President Suharto, the newly-inaugurated development projects prove that the government does not only develop large scale projects but also small scale ones which are of direct benefit to the general public.

The plantation project, for instance, opens new job opportunities to many people. Moreover, the project is managed under a nucleus estate scheme which gives opportunities to capital owners, local people and farmers involved in the project to enjoy the profits.

Such a working pattern results in a close and natural interdependency between the big people and small people—the capital owners and the workers—the head of state said.

This type of partnership in which no one exploits the other but rather supports each other for mutual benefit should be extended into many other sectors of production, he said.

JAPAN

Government Allows Nuclear Plant To Change Steam Generators

OW2306060692 Tokyo NHK General Television Network in Japanese 1000 GMT 22 Jun 92

[From "NHK News" program]

[Text] When Kansai Electric Power Company found last year that 17 percent of the thin pipes in the steam generators of the number two plant of its Takahama nuclear power station had been damaged, it decided to change all three steam generators in the plant and reported its plan on the change to the Ministry of International Trade and Industry [MITI] last July.

Today, MITI issued an approval on the plan, based on results of a review of the plan. The results have revealed that there should be no safety problem in the work process of changing the steam generators. According to the plan, since the steam generators are large facilities—4.5 meters in diameter or 21 meters in length—a hole of about 8 meters in width and height needs to be made in the nuclear reactor casing of steel-reinforced concrete in order to take the steam generators out.

New steam generators equipped with remodelled pipes and metal parts will be installed instead. There are instances of steam generators having been changed in the United States and Sweden, but this is the first time that this will be done in Japan. Kansai Electric Power Company plans to change them during the routine inspection period beginning in January 1994.

Environment Agency Plans Acid Rain Survey in FY '93

OW2506120492 Tokyo KYODO in English 1013 GMT 25 Jun 92

[Text] Tokyo, June 25 (KYODO)—The Environment Agency plans to initiate an investigation of acid rain in the next fiscal year to survey the influences of sulfur oxide released into the atmosphere by China and South Korea, officials said Thursday.

The survey will be the third by the agency to study acid rain and will run through 1997.

A four-year survey by the General Research Institute of the electric power industry in May suggested that sulfur oxide from China, which is carried by winter seasonal winds, has caused worsening acid rain in Japan.

In April, the Chinese government indicated that large coal-burning power plants in the Chang Jiang (Yangtze) river basin were contributing to the acid rain problem in Japan and acknowledged officially that it had become a trans-border pollution problem.

However, it is not clear how nitrogen oxide and sulfur oxide from South Korea and volcano emissions makes

its way to Japan. The complete scenario of the origins of the pollutants also remains unclear.

The agency plans through the survey of the air over Sado and Tsushima Islands in the Sea of Japan and a simulation to make clear the effects on Japan of sulfur oxide from China and South Korea, the officials said.

The investigation will also look at acid rain caused by fumes from volcanic Mt. Sakurajima in Kagoshima Prefecture, southern Japan, which is said to generate as much sulfur oxide as all of the steam-powered electricity generating plants in Japan combined.

The agency hopes it will discover the origin and diffusion of acid rain that falls in Japan.

It is also looking for an exchange of information on acid rain with China, South Korea, the Philippines, and other Asian nations that are doing similar research, the officials said.

They said the agency will incorporate policies for financial aid and for furnishing observation technology and a system to do research with these nations.

LDP Panel Agrees To Set Up 10 Billion Yen Environment Fund

OW2506064792 Tokyo KYODO in English 0536 GMT 25 Jun 92

[Text] Tokyo, June 25 (KYODO)—The ruling Liberal Democratic Party's [LDP] round-table conference on the environment agreed Thursday to set up a 10 billion yen fund to tackle global environment preservation, party officials said.

The Environment Fund will be established in October to develop the government's measures on global environmental preservation into a national movement by seeking cooperation from various areas, the officials said.

Tax privilege measures will be taken for contributions from companies and individuals and the party hopes the scale of the fund will be between a few hundred billion yen to 1 trillion yen in the future, they said.

The panel, headed by former Finance Minister Ryutaro Hashimoto, will further discuss the amount of investment it will seek from the government and the private-sector and then demand government money in the budget for fiscal 1993, starting next April.

In a related development, another intra-party panel on the environment led by Masayoshi Takemura has also urged the government to invest 200 billion yen in the environmental fund from the supplementary budget for the current fiscal year, the officials said.

Voices are mounting both in the LDP and business circles that the government should compile the large-scale supplementary budget for the 1992 fiscal year, which ends next March, to boost the sluggish domestic economy.

Tokyo Wants To Host 1993 International Whaling Talks

OW2706033692 Tokyo KYODO in English 0259 GMT
27 Jun 92

[Text] Glasgow, June 27 (KYODO)—Japan will propose that it hosts next year's gathering of the International Whaling Commission (IWC) in an apparent bid to seek international understanding toward its continued whaling, Japanese sources said Saturday.

The sources close to a Japanese delegation to next week's IWC meeting said the bid is likely to materialize as many parties concerned are positive about the idea and no other country seems willing to challenge it.

If realized, the meeting would be the first hosted by Japan in 25 years. Likely venues include Tokyo and Sendai, northern Japan.

The sources said the proposal reflects Japan's wish to avert the international tilt toward a total ban on whale hunting.

The 37-member IWC, established in 1946 to control whale hunting, voted to ban commercial whaling in 1985.

Japan, along with such whaling countries as Norway and Iceland, continues limited whaling under the banner of scientific research, which is excluded from the 1985 accord.

The three countries want commercial whaling to resume, arguing stocks of minke whales, estimated at 760,000 around the Antarctic and 100,000 in the north Atlantic, are sufficient.

But rough going is expected for their battle to lift the ban, as they are minority in an increasingly environmentally-conscious world.

In fact, Japanese whalers face another threat to their business as next week's IWC meeting, starting Monday, will discuss a French proposal to create a whale sanctuary in part of the southern hemisphere.

French Proposal for Antarctica Whale Sanctuary Rejected

OW3006112492 Tokyo KYODO in English 1024 GMT
30 Jun 92

[Text] Tokyo, June 30 (KYODO)—Japan reiterated Tuesday its rejection of a French proposal to set up a whale sanctuary in Antarctica but denied that it might withdraw from the International Whaling Commission (IWC).

"We are concerned that the French proposal is not necessarily in line with the basic idea of the international convention of whaling, which is based on the idea of conservation and rational utilization," a Foreign Ministry spokesman said.

Sadaaki Numata said, "whales are a renewable resource which should be managed prudently," adding the subject of whaling should be broached "on the basis of scientific facts and not emotion."

France, at the 44th annual IWC conference in Glasgow, Britain, proposed Monday that a sanctuary be created south of 40 degrees latitude. The safe area would include the main feeding grounds of several large groups of whales, including the sperm whale.

Japan denounced the proposal in a written statement, citing recent IWC figures that estimate the population of Antarctica minke whales to be more than 760,000.

Japan, which catches approximately 380 whales annually for research purposes, is one of a handful of countries that continues to hunt whales despite an IWC moratorium on whaling ever since the 1986 hunting season.

Japan's rejection of the French proposal came on the same day that Iceland formally withdrew from the IWC, charging that the 37-nation body was overly protective of whales.

Numata dismissed the possibility that Japan might follow suit, citing rumors that Japan is seeking to host next year's IWC conference.

"If we were seriously contemplating withdrawing from the IWC we wouldn't make that proposal," he said.

Foreign Ministry sources acknowledged, however, that if the French proposal wins approval from the IWC there will be strong pressure at home for leaving the IWC.

SOUTH KOREA

South To Present Ecological Survey Plan to North

SK2306085892 Seoul YONHAP in English 0814 GMT
23 Jun 92

[Text] Seoul, June 23 (DANA-YONHAP)—South Korea will draw up a joint ecological survey plan for the Demilitarized Zone (DMZ) with North Korea through prime ministers' and exchanges and cooperation sub-committee talks, Environment Minister Kwon I-hyok said Tuesday.

The joint survey team will comprise government officials, environment experts and civilian organizations, he told an environment ministerial meeting at Chongwadae, the presidential residence.

Ecological protection zone can be established in the demilitarized zone after reviewing survey results, Kwon told the meeting.

South Korean Prime Minister Chong Won-sik proposed at the earth summit in Rio de Janeiro early this month that Seoul and Pyongyang jointly research the 258km-long, 4km-wide Demilitarized Zone in the middle of the Korean peninsula.

The zone, devoid of any human habitation for over 40 years, divides Korea into the communist North and capitalist South.

"We (South Korea) will prepare a detailed survey plan first and then settle on a joint plan through inter-Korean prime ministers' talks and other contacts," Kwon said.

South Korea will seek joint survey of mountains through mutual visits and propose research of bird migration as well, he said.

Seoul and Pyongyang could form a nature and environment protection council and incorporate it into an overall environment policy for the Korean peninsula, Kwon told the ministerial meeting.

Cooperation will be strengthened with North Korea, Japan, China, Russia and Mongolia for forming a regional environmental consultation body in Northeast Asia, and these countries will be invited to the Seoul international environment symposium in September to discuss the possibility, he said.

Prime Minister Urges North To Use Light Water Reactors

SK1007030292 Seoul YONHAP in English 0234 GMT 10 Jul 92

[Text] Seoul, July 10 (yonhap)—North Korea should change from graphite to light water nuclear reactors because the graphite reactor, like the one in Chernobyl in the Soviet Union, has safety problems, South Korean Prime Minister Chong Won-sik said Friday.

If by any chance there were a nuclear accident in North Korea during the winter, dangerous radioactive particles would be carried by southeasterly winds over to South Korea, Chong told a breakfast meeting on environmental protection for Northeast Asia.

North Korea, he added, should do its utmost to insure the safety of its nuclear reactors.

Chong also called on the countries of Northeast Asia to form a cooperative body to undertake moderate industrialization in order to help solve regional pollution, which is among the worst in the world.

Almost every country in the region uses fossil fuels such as coal and oil, he noted, proposing joint development of alternative energy.

Since Japan leads the region in environmental technology, Chong said, it should make its knowhow available to other countries for a cleaner and safer environment.

As for the proposal he promoted in Rio de Janeiro, Brazil, in June, for a joint survey of the ecosystem in the Demilitarized Zone (DMZ), Chong said he had not had any response from North Korea.

It could be discussed at the prime ministerial conference to be held in Pyongyang in September, he said.

Cabinet Approves Environmental Tax Bill

SK1007013492 Seoul THE KOREA TIMES in English 10 Jul 92 p 3

[Text] A bill for the imposition of special taxes to be used for environment protection was approved in a Cabinet meeting yesterday, the Environment Ministry said yesterday.

The passage of the bill is significant in that it provides a reliable and consistent source of funds, aside from the budget, to pursue nationwide nature preservation campaigns.

The levy goes into effect retrospectively from July 1 and will affect vehicles using fuels that contribute to excessive pollution and business establishments including hotels and restaurants, ministry officials said.

In the case of commercial buildings, the levy will largely be based on the size of establishments ranging from restaurants and saunas to exhibition halls and department stores as well.

For example, the Lotte Hotel in downtown Seoul, which has 1,353 rooms, will have to pay a sum of 332.3 million won for this year based on recent figures provided by the Transportation and Home Ministries.

The Sheraton Walker Hill Hotel, with 637 rooms, will have to dish out 208.6 million won this year while the Seoul Garden Hotel pays 36.6 million won for its 394 rooms and attached entertainment facilities.

For vehicles, the amount of taxes will depend on where they are registered and how long they have been in operation.

A Korando, manufactured by Ssangyong Motors, with a seating capacity of six and an engine capacity of 2,238cc, will face an annual tax of 21,500 won.

Government Outlines Post-Rio Plans for Environmental Protection

SK2306102392 Seoul YONHAP in English 0917 GMT 23 Jun 92

[Text] Seoul, June 23 (YONHAP)—The government will invest 815.5 billion won in the development of substitutes for chlorofluorocarbons (CFCs), incinerators causing less pollution, and technologies for a new catalytic converter by the year 2001.

It has also decided to legislate a law for the restriction of toxic wastes disposal in preparation for the signing of the

Basel convention that would control the movement of toxic materials across national boundaries.

These and other decisions were made at a meeting of environment-related ministers presided over by President No Tae-u Tuesday to cope with the impact of the Earth Summit on Korea.

Prime Minister Chong Won-sik told the meeting that an inter-ministerial organization would be set up soon to work out and coordinate measures for sustainable development amid environmental preservation.

Deputy Prime Minister Choe Kak-kyu, who also is the economic planning minister, said his board would strive to expand energy-saving facilities and cut energy consumption in such fields as steel, cement and petrochemical industries.

Choe said that his Ministry would press hard to reduce carbon dioxide emissions by raising the share of atomic power and liquefied natural gas (LNG).

He also said that policy support would be given to such value-added industries as precision machinery and genetic engineering which are not very dependent upon energy.

He said he was considering enactment of a law to promote the formation of an energy-saving industrial structure.

Foreign Minister Yi Sang-ok said the Earth Summit in Rio de Janeiro fell short of innovative measures to solve environmental problems due to conflicting views between advanced and developing countries.

"But the conference arranged a basis for sectoral negotiations in the future," Yi told the meeting. He added that the summit would be followed by stricter international restrictions aimed at preserving the environment.

He said his Ministry would wage an active diplomacy to prevent the industrializing countries from sharing an unfair environmental burden and to have them secure the right to development.

The Foreign Ministry would continue to play the role of an intermediary between the advanced and developing nations by suggesting workable compromises in the days ahead, he said.

Environment Minister Kwon I-hyok said the top priority in development projects would be environmental preservation. The environmental assessment system and standards would be strengthened, he said.

Turning to the eco-system survey in the Demilitarized Zone proposed by the government to North Korea, Kwon said that his Ministry would draft a plan on the joint survey and would finalize it through the inter-Korean high-level talks.

Kwon said his Ministry was also considering joint surveys of famous mountains in both sides of the Korean

peninsula and establishment of a consultative body on preservation of natural environment which might streamline environmental policies of South and North Korea.

The Environment Ministry would seek to upgrade cooperation with North Korea, Japan, China, Russia and Mongolia to resolve environmental issues, he said.

Inter-Ministerial Conference To Plan Country's Role in Global Environment

SA1007035192 Seoul YONHAP in English 0221 GMT 10 Jul 92

[Text] Seoul, July 10 (YONHAP)—The government has instituted an inter-ministerial conference on earth environment to plan South Korea's active role in the global movement for environmental protection spawned by the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro last month, officials at the prime minister's office said Friday.

The conference is chaired by Prime Minister Chong Won-sik and Economic Planning Minister Choe Kak-kyu is vice-chairman. Members are 16 cabinet ministers from relevant offices, including Foreign, Home, Finance, Education, Trade and Industry, Energy and Resources, Construction, Health and Social Affairs, and Environment Ministries.

The conference will draw up plans to comply with the "Rio Declaration on Environment and Development," "Agenda 21" and other international agreements, and cooperate with the United Nations or individual countries on environmental matters.

To support the conference, the government has decided to form two working-level groups—one of vice ministers and experts—and the other of directors-general of related ministries.

The group of bureau directors-general held its first meeting on Friday and that of vice ministers will follow suit July 16. The inter-ministerial conference will convene its inaugural meeting late this month.

THAILAND

Official Highlights Environmental Crisis Areas

92H N06184 Bangkok MATICHON in Thai 18 May 92 p 18

[Article by Saksit Tridet, director, Liaison Division for Natural Resource and Environmental Management of the Office of Policy and Environmental Planning]

[Excerpt] [passage omitted] Effort to find solutions to environmental problems in Thailand have been in effect since 1975 under the direction of the Office of Policy and Environmental Planning. The office emphasizes finding

solutions to many environmental problems, in particular, pollution, by trying to make use of applied technology. They have made an effort to exercise environmental control standards and to enforce environmental law.

However, the effort has not been successful because of many obstacles, most importantly, public lack of understanding. They do not realize the seriousness of environmental problems, which leads them to withhold cooperation. As a result, the approach to solving environmental problems has been revised to putting more emphasis on a campaign for public understanding, as well as cultivating public consciousness on environment. The public and people involved from various sectors are now trying to be more and more cooperative. It is obvious that commercials, good public relations, environmental protection campaigns, as well as use of mass media play significant roles in solving environmental problems.

Environment Crisis

(1) Natural resources: previous developments have consumed natural resources at extremely high rates, in particular, forests, arable land, water, destruction of coastlines, fish, and use of minerals. The lack of effective control of natural resources and the conflicts in their use have almost depleted them or left them in deterioration. For example, forests have been decreased at the average of three million rai a year for the past 30 years. There have been cases of encroachment on 30 million rai of natural reserved forests for agricultural and fishery purposes. Finally, there has been a widespread occurrence of saline soil because of salt production, as in the case of the Siao River.

(2) Pollution: The country's economy has been expanding rapidly and the economic structure has changed to industry and importing. Rural areas are changing into urban areas as the number of industrialized zones increase. In big cities, in particular, pollution is in a state of crisis that urgently requires solutions. Concerning water pollution, main and major rivers have been polluted. The Chao Phraya River, and the Lower Tha Chin River are so polluted that the oxygen in the water is near zero. The air pollution problem is severe within city limits, particularly in Bangkok, where there is a huge number of cars and massive traffic jams. Waste and toxic waste also create major pollution problems. Metropolitan Bangkok produces 1.89 million tons of garbage a year, and only 80-90 percent of it can be collected and disposed of. Moreover, there has been a problem of landfills, as in the residents' protest in Chiang Mai. [passage omitted]

Paper Calls for Scrapping Relocation Program

BA2206032892 Bangkok BANGKOK POST in English
22 Jun 92 p 4

[Editorial: "Khor Jor Kor plans should be scrapped"]

[Text] One of the more poignant ironies of that sad and senseless confrontation in Nakhon Ratchasima last week

between the residents of Ban Nong Yai and the supposed forces of law and order is that the 17 villagers arrested were charged with encroaching on a national forest. Less than two months ago residents from this village were evicted and deposited in Thap Lan National Park and actively encouraged to make themselves at home. Those arrested yesterday were part of a group who had decided they wanted no part of forest destruction.

The motivating force behind this and many other evictions in the Northeast is the Army's Khor Jor Kor [land for the landless] "relocation" programme, which is as perplexing in its conception as it is brutal in its execution. The Army seems to consider Khor Jor Kor to be some type of military campaign, with the village the objective to be cleared and the villagers the "enemy". Whatever it purports to be, the result of Khor Jor Kor is to uproot villagers from supposedly "degraded" forest reserves and transplant them elsewhere to make way for reforestation. This is a familiar tableau on the Thai landscape, but the Khor Jor Kor scheme has achieved a notoriety probably unparalleled by any previous relocation programme. As such it needs to be scrutinised.

We could begin by asking why bother protecting a forest by locking it up into a national park if the park is to be invaded by a horde of land-hungry refugees (in their own country). Yet this was what occurred at Thap Lan. By law, people are not allowed to live in national parks, but the Army flagrantly flouted the law because it had failed to find suitable land on which these families could subsist. Thap Lan National Park is adjacent to Khao Yai, which was closed last February to all overnight visitors. Can it be assumed, then, that if it suited the Army's convenience it would dump surplus villagers in Khao Yai?

But we must dig further and ask why the Army has got itself interested in reforestation? There are echoes of Suan Kitti here, especially after the mendacious nonsense from the Army chief of Khor Jor Kor that the park land it had expropriated were "groves" rather than the natural forest it had been before the villagers were installed.

As the agency charged with the protection of forests, where does the Forestry Department stand in this environmental farrago? So little has been heard from that quarter one wonders whether it has supinely submitted to force majeure without protest or remonstrance, or whether Khor Jor Kor is an expedient through which the Army does the Forestry Department's job and the 4,000 rai of destroyed forest (now reportedly 10,000 rai) is the price one must pay for services rendered?

How does all of this square with the Community Forest Bill, put forward by the Forestry Department more than two years ago and still in the legislative pipeline? The bill was prompted by an encroachment scandal at Huay Kaew, in Chiang Mai. It would allow villagers, like those

from Ban Nong Yai, title to work the land on which they have lived, in many cases since well before the land was taken from them and designated forest reserve in 1957 and 1964. The bill also promotes the principles of reforestation that are embodied in the Thai Forestry Sector Master Plan, which, with \$5 million invested in its preparation, is intended as a comprehensive reforestation programme for the entire country. This Master Plan has been wrought into a fundamentally bottom-up operation that gives local communities the authority to control and manage their own resources. This might not sit well with the top-down-oriented bwanas of Bang Khen, which may account for the Community Forest Bill's curious lack of momentum.

Other schemes have been proposed, none of which has done anything to refurbish our forests, so one is tempted to ask: Who's in charge here? Everybody is conscious of the hiatus between the end of the Anan I government and the beginning of the Anan II interim administration. The answer, for that period, is, nobody was.

But it is hoped that Mr Anan's administration has the will and the time to take stock of this jumble shop of programmes and throw its weight behind those efforts best suited to restoring or conserving what is left of our forests. A good start would be to scrap Khor Jor Kor entirely.

Cabinet Suspends Army's Land Resettlement Program

BK2306151892 Bangkok Radio Thailand Network in Thai 1200 GMT 23 Jun 92

[Interview with Prime Minister Anan Panyarachun by unidentified reporters in Bangkok on 23 June—recorded]

[Text] The Cabinet has agreed to suspend the land resettlement program of landless villagers from denuded forest reserves. Prime Minister Anan Panyarachun told reporters after the Cabinet meeting at Government House that the Cabinet had agreed that the program was good in principle. However, there have been problems in the implementation of the program.

[Anan] The land resettlement program has been carried out by various governments. We merely continued the program during my first government. Now we see that it is still a good program in principle. However, in practice there have been problems. The program has faced problems in some areas for a long time.

The Cabinet meeting this morning agreed with the following three points. First, the land resettlement program's original target to cover the whole country is scrapped. Second, any land resettlement projects which have not been started are halted. Third, a committee—chaired by the permanent secretary for the Prime Minister's Office and comprising representatives from various government agencies, five or six representatives from the private sector, the rectors of Chulalongkorn

University, Thammasat University, and Kasetsart University; and representatives from two private organizations—is being set up to conduct a survey on the weak points of the projects under implementation in some areas and how the problems can be resolved. The committee will forward the results to the Cabinet within 30 days. Agriculture Minister Khosit will give the details in this regard. The agriculture minister, the defense minister, and the interior minister have closely consulted each other over this issue since these three agencies are in charge of the land resettlement program.

[Unidentified correspondent] *How about the villagers who have been affected by the program?*

[Anan] Please wait for 30 days. The committee will submit its report to the Cabinet within 30 days and the Cabinet will consider this again. I would like to give the assurance that the government will not resort to any violence. I would also like to ask those who are making demands to wait for 30 days.

[Unidentified correspondent] *How about those who are facing court trials?*

[Anan] That is another case. We cannot interfere in the court procedures.

[Unidentified correspondent] *What is the reaction from the Armed Forces?*

[Anan] The Armed Forces understand this issue well. Formerly, this program was to be carried out by the Interior Ministry. However, the Internal Security Operation Command [ISOC] has been used to help in implementation in some remote areas. The Armed Forces or the ISOC are ready to reduce their role in this regard.

New Environment Act Enhances Authority of Watchdog Organizations

BK0907012392 Bangkok THE NATION in English 9 Jul 92 p A2

[Text] Phatthaya and Phuket will be declared protected areas under the first National Environmental Quality Management Plan, marking the first application of the new act. Science, Technology and Environment Minister Phaichit Uathawikun said yesterday.

Earlier, Prime Minister Anan Panyarachun presided over a ceremony to transfer an additional Bt4,500 million from the Oil Fund to the Environment Fund which was initially assigned a Bt500 million budget.

The ceremony coincided with a seminar on "The New Environment Act: Impacts and Trends in the Future" at Government House, marking the declaration of the implementation of the new environment act.

The National Quality Act B.E. 2535, which toughens the former version of the 1975 Environment Act, gives full

authority to the renamed Ministry of Science, Technology and Environment to tackle environmental degradation.

The ministry is equipped with three environmental watchdog organizations—the Department of Environmental Quality Promotion, the Department of Pollution Control and the Office of Environmental Policy and Planning.

Unlike the old law, under which the former Office of the National Environment Board served only an advisory function, the new law gives full authority to the ministry, according to Phaichit. He said the new law will be efficiently implemented by the use of two mechanisms—the establishment of the new National Environment Board, chaired by the premier and consisting of the Cabinet, and financial support from the Environment Fund which is supervised by the board.

"The status of the National Environmental Board will be similar to a small cabinet. If this mechanism does not work, there will be no other means," Phaichit said.

The national environment plan, which is equivalent to those of the five-year national economic and social development plans, will be the guideline for environmental protection. The first plan will declare Phatthaya and Phuket as protected areas where pollution control and conservation measures are strictly enforced. Phaichit said.

"This environment plan must be integrated into the economic and social development plan," said Kadem.

Factory Act Requires Higher Safety, Environment Standards

BK1007020092 Bangkok *THE NATION* in English
10 Jul 92 p B2

[by Pichaya Changson]

[Text] The new Factory Act regulations, which took effect yesterday, are the first change made in 23 years since the tenure of former prime minister Marshal Thanom Kitikachon.

The change were approved by the National Legislative Assembly during the Anan I government. The new regulations are aimed at meeting new requirements of industries with tougher measures on environment and safety. They are supposed to reduce state control to only supervision.

The control will only be made to factories which have caused damage to the environment or do not abide by safety standards. Both the civil and criminal penalties have been made tougher.

Factory Act BE2535 carries 68 articles. The first chapter covers factory operations, the second factory supervision and the third penalties.

Under the law, a factory refers to building, premises or vehicle using machinery with more than five horsepower or employing more than seven people.

The heart of the first chapter is details from Article seven to 31 giving power to the industry minister to divide factories into three categories bases on degree of supervision to prevent damages or impact to people and environment.

The first category is factories which do not need prior approval for opening. The second is those requiring permission from the authorities to start operations. The third is those required to have factory licences first.

According to the new regulations, the term of the factory licences is extended from three to five years and the private sector could be appointed to inspect the factories on behalf of the authorities. In the second category, the factory owners only need to inform the authorities that they will start production and record evidence of the dates when the requests were made.

For factories in the third category, the authorities can issue a preliminary paper to the factories if the initial examination is satisfactory. This will allow factories to start partial operations or test their equipment.

On the extension of the licences, the factories will be permitted to continue operating while they hand in extension applications until such a time that there should be a rejection. If the authorities found that the factories do not comply with the regulations they will be given time to make corrections at the specific time. If the correction cannot be made then the licences will be revoked.

The factories can appeal to the minister within 30 days of receiving the rejection for licence extension. The ruling of the minister is final. No factories can embark on expansion unless approval is first given.

In cases where factories move from one category to the next, factories must hand in applications within 30 days and the factories can proceed.

The minister can grant waivers to factories to seek licences or permission located on specified industrial estates.

Article 32 specifies the following authority to the industry minister under Cabinet approval in cases involving economic, environment, security and public safety: set the number and size of each factory or type or disallow them from being able to set up in certain areas as well as the quality and types of raw materials which should be set and sources as well as the type of energy, also set the types and quality of products.

In case anyone is injured in an accident and cannot resume work in 72 hours, the authorities must be informed in writing within 72 hours. The same applies if

someone is killed. If an accident occurs and the factory is closed for more than seven days, the authority must be informed within 10 days.

Article 35 specifies that the officials can freeze all assets and documents if there are indications that a factory may cause damage to nearby areas or factories. The investigation can be conducted by officials with ranking from C-4 up. Factories will then be given a period to make correction.

Article 39 allows the permanent secretary for industry or officials authorized by him to temporarily stop work or to close down and make necessary corrections. But an appeal can be made within 30 days to the minister.

In case the damages have to be corrected by the government, the factory owners must pay all expenses plus an interest penalty of 30 per cent. The authorities can use initial funding from the Environmental Fund but the factory owners must repay the money.

All penalties have about doubled. The maximum imprisonment term has been doubled to four years and fine doubled to Bt200,000 for general factories.

There is also a transition clause allowing firms now submitting requests to use the new regulations.

VIETNAM

Industrial Waste Worsens Ho Chi Minh City's Pollution Problems

92W N06204 Ho Chi Minh City SAIGON G141
PHONG in Vietnamese 7 May 92 pp 1, 5

[Article by Thu Binh: "Industrial Waste—One of Reasons Behind Environmental Pollution: Of 20,000 Production Installations, 90 Percent Are Located in Residential Areas, 100 Percent Are Not Equipped To Handle Waste, SO_2 Content Exceeds Standard Level by Two-Six Times, Dust 30-60 Times, Lead Concentration Five-10 Times"]

[Text] To protect the ecological environment currently is the most urgent concern in the management of urban construction and development in Ho Chi Minh City. Actual measurements made in the last several years point to the fact that environmental pollution in urban areas has been getting more and more serious. Let us cite a few figures reflecting the most recent measurements made by the responsible organs: In 27 locations where measurements of SO_2 concentration and polluting dust in the air of precincts and districts were made, the levels were all several times higher than the standard ones permitted: The SO_2 content exceeded the standard level by two-six times in Thanh Da Rest and Recreation Home (in Binh Thanh District), Hamlet 1 of Binh Tri Dong Village (Binh Chanh), and An Suong intersection (Thu Duc), where air ventilation was all good; dust by

30-60 times in Viet-Soviet Culture House (in 1st Precinct), the office of the 11th Precinct People's Committee, and Materials Store No. 2 (6th Precinct). In the bus terminals serving the Eastern, Western, Tay Ninh, and Van Thanh lines, lead concentration in air samples exceeded the standard level by five-10 times. By just looking at the black water in canals and ditches that wind through the city, everybody can easily detect the level of water pollution. Measurements of DO (dissolved oxygen) and BOD_5 (five-day biochemical need for oxygen) of water samples taken from Tham Luong, Nhieu Loc, An Ha, and Rach Chiec canals and from the rivers of Saigon, Cho Dem, Nha Be, Long Tau, and so on all indicated that the sources of the municipality's water supply were being polluted more and more seriously by wastewater from human use and particularly by industrial chemical wastewater from factories, enterprises, and small industrial and handicraft production installations.

Although the responsible organs have not yet obtained various overall data having to do with the aftermaths of environmental pollution, we must admit that the above-mentioned situation has to a considerable extent adversely affected the health and daily activities of the municipality's residents, particularly its poor laborers. Complaints about pollution were increasing everyday and were mainly directed at the production installations that are located in crowded and cramped residential areas. From a few dozens of complaints in 1980, 1981, and 1982, the annual numbers rose to about 200 cases in subsequent years and in 1991. They did not include the cases in which residents did not file any complaints against the polluting acts of many industrial, small industrial, and handicraft production installations as they shut their eyes to such acts just to maintain good neighbor relationships.

We must recognize the fact that in the last several years there was a close coordination of action among the municipality's administration, committee, and sector echelons, scientific management organs, research institutes, and colleges to improve the environment for the 4 million urban residents. The most significant action on their part was the construction of "green belt" clusters consisting of 26,000 hectares of forest, 20,000 hectares of mangrove in Can Gio District, more than 400 hectares of protective forest in Thu Duc Forestry Site, and 45 million trees of various kinds planted in residential areas. However, tree planting and afforestation is only one aspect of the effort to improve the ecological environment and does not constitute a total solution. In recent years, the untreated exhaust air emitted by Binh Dien Fertilizer Plant caused many trees in the area to wilt and die.

According to data recently obtained by the Municipal Environmental Protection Council and other responsible organs, the water and air pollution in the municipality has been caused by waste of all kinds ejected by about 20,000 factories, enterprises, and small industrial and

handicraft installations. Ninety percent of these production installations are located next to or inside crowded residential areas. And the "painful" fact about them is that nearly 100 percent of these units do not have their own equipment to treat the waste before emitting it into the water and air environment and the soil. This problem has been existing for some time. Meanwhile, there are other ways of violating the environmental protection regulations that need to be mentioned: When a responsible organ considers the economic and technical arguments in favor of a certain construction project, it always asks that the installation concerned have definite plans for treating waste, and almost all installations are capable of submitting such plans. But when construction permits are actually in their hand, almost all of them immediately "forget" the need to invest in building the system of technical equipment to treat waste. The race to obtain economic gains prevails over the protection of safety in various aspects of social life. A municipality that aims at healthy construction and development cannot accept a deliberate and unchecked emission of untreated waste containing toxic materials into its canals, rivers, soil, and air.

In our opinion, the top-priority issue now is to have an urban management-organizing mechanism effective enough to impose on production units plans for

investing in waste treatment equipment for their own use. On this basis, we should gradually expand the field of waste treatment to other regions and areas as needed. Our municipality does not lack research organs and scientists specialized in the manufacturing of waste treatment equipment. But what we lack now is the legal power of an urban management organization serving as a "bridge" between production units and scientists to gradually and properly resolve the issue of protecting the municipality's wholesome ecological environment.

Vice Premier Affirms Commitment to Environment

*BK2306071892 Hanoi VNA in English 0625 GMT
23 Jun 92*

[Text] Hanoi, June 23 (VNA)—The Government of Vietnam, through its participation in the Earth Summit has shown its serious attitude on the protection of the environment, said Vice Premier Nguyen Khanh in Hanoi on Monday.

Mr. Nguyen Khanh, who had just returned from the Rio de Janeiro conference, told the press here June 22 that Vietnam would contribute practically to global efforts in settling effectively the relationship between environment and development.

BULGARIA

Presidential Adviser Views Zhelev's Foreign Debt Proposal

AU0907140792 Sofia BTA in English 1320 GMT
9 Jul 92

[Text] Sofia, July 9 (BTA)—At the Earth Summit in Rio de Janeiro in mid-July Bulgarian President Zhelyu Zhelev made a speech expressing Bulgaria's desire to assume certain environment-protection commitments against partial forgiveness of its foreign debt.

Bulgaria has an enormous foreign debt amounting to some 12,000 million U.S. dollars which it has not practically been servicing since the imposition of the moratorium by the socialist government in March 1990. "There is a way out even in the case of Bulgaria, which owes 12,000 million dollars—most of it to private financial institutions. The indebtedness to private banks is not any special obstacle. There is just one more procedural step to overcome," Mr. Simeon Bozhinov, advisor to the president on environmental issues, told BTA.

So far Bulgaria has not presented the idea to the London or Paris Clubs. "The principle is gaining ground. There are no specific criteria for its application, it is subject to negotiations. The idea should be launched by the government which would undertake certain commitments for the protection of environment in return for being granted debt forgiveness," Mr. Bozhinov said.

Asked if Bulgaria was ready with such environmental projects, Mr. Bozhinov answered that the first step would be the adoption of Bulgaria's proposal in principle. "We cannot make such projects without receiving our creditors' approval. When the idea is accepted on summit level, we would be ready to work out the specific projects. It is up to the government to select the project and decide whether it deserves attention," Mr. Bozhinov explained.

According to Mr. Simeon Bozhinov, Bulgaria can come out with a project on the final settlement of the problem with the nuclear power plant at Kozloduy. (The interview with the president's advisor on environment is published unabridged in BTA's weekly BULGARIAN ECONOMIC OUTLOOK, No. 25.)

In a recent statement for the Plovdiv MARITSA newspaper, Finance Minister Ivan Kostov also commented on this idea. "Other countries have negotiated the undertaking of environmental commitments against debt forgiveness, but in their case the question was not about more than 10,000 million dollars," he said. According to him, the European countries are very hard to please when the ecological situation in Bulgaria is concerned and the closure of the first two reactors at the Kozloduy Nuclear Plant comes to prove this thesis. Referring to Mr. Kostov, MARITSA wrote on June 16 that if the nuclear plant's two generating units remained closed for

a long time, the annual amount of electricity losses would come up to 150-200 million dollars.

POLAND

Environment Minister Wants Companies To Clean Up Production

LD2906193992 Warsaw PAP in English 1835 GMT
29 Jun 92

[Text] Warsaw, June 29—The restructuring of home industry has to be coupled with the environmental protection translated into the reduction of hazardous substances emission. Minister of Environmental Protection, Natural Resources and Forestry Krzysztof Kozlowski told a meeting of directors of companies held in Warsaw on Monday.

The ministry wants to encourage the companies to join the "Clean Production Declaration" designed to promote the making of environmentally safe goods. The companies willing to sign the declaration will be given aid for staff training programmes and access to the database on the world's environmentally friendly know how. They could also win the ministry's endorsement when seeking financial assistance for the projects.

At least thirteen enterprises, including Warsaw's auto maker (FSM) and steel works from southern Polish cities of Czesochowa, Ostrowiec and Miasteczko Slaskie have joined the declaration so far.

ROMANIA

Iliescu Statement on Domestic, Earth Summit Issues

AU2906082692

[Editorial Report] Bucharest DIMINEATA in Romanian on 20-21 June, pages 1 and 5, carries a 4,000-word introductory statement by President Ion Iliescu at a news conference in Bucharest on 19 June.

Ion Iliescu begins his statement by expressing satisfaction with the Romanian Parliament decision to hold parliamentary and presidential elections on 27 September. Along this line he says: "While still in Rio, I was pleased to learn about the decision made by the parliament," to "hold elections simultaneously on 27 September. I view this as a positive signal following the meetings and consultations I conducted with the chiefs of parties and parliamentary groups, and I view it as a positive precondition for the constructive and favorable atmosphere that ought to characterize the coming period, that is the pre-electoral period. I think that it proves the maturity of the political forces and Romanian society and their desire to ensure a decent and civilized election campaign. A confrontation of opinions, options, and political position, as well as the presentation of programs and alternatives is normal for any election campaign. However, these confrontations have to focus

on the essence of problems with arguments, political commitments, projects," and "on the confrontation of the qualities of the candidates who are running for these elections.

"The electorate has to be persuaded with solutions" aimed at "taking the economy and the Romanian society out of this crisis, as well as with credible alternative projects for the country's socioeconomic development, for strengthening the democratization process, building a state of law, promoting viable and effective strategies for the whole transition period, and ensuring the future development of the Romanian economy. This has to be a concern of all of us" as has the concern for "avoiding the use of violent language, physical violence, intimidation, and blackmail. The election campaign ought to be a genuine test of maturity for us. I think that the press has to play an important role during this period to ensure a constructive atmosphere of mutual esteem and regard, despite the differences of opinion, which are natural in a democratic society."

After briefly commenting on the aims of the Earth Summit in Rio de Janeiro, which he had attended, President Ion Iliescu enumerates all the conventions signed and documents adopted during that conference. He then renders a brief, factual description of the contents of each of them. He ends by saying: "Finally, a few somewhat critical comments and views, and disappointing elements, because this conference did not end with tangible decisions and measures. Certainly, he who expects this of such a conference may be disappointed, but usually such international conferences are not decisionmaking bodies. Their importance lies in the way in which they approach problems, the prospects they open up, and in the consensus that is reached at the international—and in our case the planetary—level; and from this point of view, it seems to me that this conference marks a very important stage." He continues by emphasizing that "the material presented at this conference was the subject and result of extensive cooperation by specialists and experts in all areas in an attempt to point out, on the one hand, problems and means to work out joint actions, and to promote the idea that the present-day world is a single whole, that we are all passengers on the same ship—the Earth—with a single destiny, that national interests are interdependent and intermingled with the common and only resources of this planet, and that it is the duty of all of us to ensure effective cooperation in rationally managing and administering these resources, while protecting the environment as a

precondition for protecting life on our planet. Consequently, the philosophic undercurrent of this conference is the essential achievement of this conference which lays the foundation for both economic and political measures."

In conclusion, President Iliescu says that "our presence at this conference and participation in the proceedings were an opportunity for numerous contacts" with "chiefs of states and governments," and with "a few hundred members of the Romanian community." In connection with the latter group, he says that "we have to make efforts to resume normal links with people who have left the country under various historic circumstances."

In connection with his meetings with "political representatives from neighboring countries," President Iliescu points out that "we expressed our common interest in strengthening our good neighborly relations and in the coming meeting in Istanbul," at which "we will sign an accord on developing not only economic relations in the Black Sea area.

YUGOSLAVIA

Yugoslav Army Stored Soviet Radioactive Waste in Banija

92P20319A Ljubljana DNEVNIK in Slovenian
12 Jun 92 p 24

[Unattributed report: "Soviet Radioactive Waste Dumps on Territory of the Former SFRY"]

[Text] Split, 12 June—NEDJELJNA DALMACIJA reports that the Yugoslav Army stored at least 13 tons of radioactive material, generated by the production of atomic bombs in the former Soviet Union, on the territory of Banija, near Dvor Na Uni. The then SFRY [Socialist Federal Republic of Yugoslavia] and Soviet defense ministers, Ljubicic and Ustinov, agreed that the Soviet Union would sell Yugoslav Army arms and equipment at low prices, and in return the Yugoslav Army would take care of radioactive waste from the Soviet Union. In 1979, radioactive waste was first brought through Romania to Yugoslavia. At first it was stored in the Boris Kidric Institute in Vinca, from where it was transported to Banija. According to NEDJELJNA DALMACIJA, radioactive waste from the Soviet Union is also stored in Glina, in the Aleksinac mines, and in Plitvice.

REGIONAL AFFAIRS

Caribbean Countries Defend Whaling Congress Attendance

FL0307000892 Bridgetown CANA in English
2122 GMT 2 Jul 92

[Text] Port of Spain, Trinidad, July 2 (CANA)—Four Caribbean countries on Thursday attacked a British newspaper report which claimed that their attendance at an International Whaling Conference had to do with providing assistance to the industrialised countries involved in whale-hunting.

In a statement, the Governments of St. Lucia, St. Vincent and the Grenadines, Dominica, and St. Kitts and Nevis said they deplored any attempt of "those who in their single-minded pursuit of their specific interests wantonly seek to destroy the economies of these small states."

"The Caribbean governments concerned will continue to participate in future meetings of the International Whaling Commission and will take positions as they see fit and in the best interest of their peoples. In doing this they will continue to be guided by scientific analysis and concerns related to the environment and sustainable development," the statement said.

The governments said while they received aid from various industrialised countries, "Japan's whaling policy bears no relevance to these considerations... Caribbean governments meet their own expenses in attending all international meetings... The Caribbean governments attending the International Whaling Commission (meetings) urge that the matter of whaling be addressed not on the basis of emotionalism, but rather through scientific analysis which includes regional assessment of the whale population," the governments said.

Their comment followed an article which appeared in the July 1 edition of the LONDON TIMES. It said that the whaling industry in St. Vincent and the Grenadines has been in operation for more than 100 years, and had for "several years been granted artisanal status by the International Whaling Commission, including an allocation of catches amounting to three whales per year. This number in fact exceeds the catches actually made by St. Vincent and the Grenadines," it added.

BRAZIL

Nuclear Energy Commission Restricts Movement of Nuclear Vessels

PY0207005892 Brasilia Voz do Brasil Network
in Portuguese 2200 GMT 1 Jul 92

[Text] Starting today, nuclear vessels and submarines cannot enter Brazil without authorization. This decision is part of new National Commission for Nuclear Energy, CNEN, regulations that also affect the Brazilian Navy

From now on, all nuclear vessels and submarines must present a series of documents regarding radioactivity protection and nuclear security 90 days before entering Brazilian ports and bays. The documents must include plans for a nuclear emergency and for the vessel's operation in port. According to CNEN President Jose Luiz Santana de Carvalho, submarines will have to disconnect their nuclear power in order to enter Brazilian territory. In emergencies, vessels will be immediately towed outside ports and bays. Santana added that the new regulation forbids the disposal of nuclear wastes in national waters, which was permitted by previous legislation approved in 1971:

[Begin recording] Now it will be completely forbidden to dispose of any radioactive materials from vessel reactors or ships such as nuclear submarines in Brazilian waters. [end recording]

The rule regulating the use of naval nuclear reactors in Brazilian waters complements the Tlatelolco Treaty forbidding the transportation of nuclear weapons in Latin America.

Government To Disburse Billions for NGO Environmental Projects

PY0307012592 Brasilia Voz do Brasil Network
in Portuguese 2200 GMT 2 Jul 92

[Text] The government will disburse 4.5 billion cruzeiros from July to September to finance projects proposed by nongovernment organizations [NGO's]. The Environment Secretariat is finishing studies on 362 projects proposed by NGO's that have applied to the National Environment Fund for money.

The government is also considering disbursing the \$2 million proceeding from an agreement with the Inter-American Development Bank, IDB. The IDB agreement will be signed in New York on 6 July. It envisions a total of \$22 million being transferred to Brazil for the implementation of environmental programs.

The NGO projects are being evaluated by the National Environment Fund director's committee, which will finish its job tomorrow, 3 July.

CHILE

Finance Minister Reacts to U.S. Report on Environmental Laws

PY0207020892 Santiago Television Nacional de Chile
Imagen Internacional in Spanish 0000 GMT 2 Jul 92

[Speakers identified by screen captions]

[Excerpts] The U.S. Congress has prepared a report criticizing the Chilean Government for lacking a firm environmental policy. Officials from both administrations, however, ruled out that this report might hamper the signing of the free trade accord.

Even though the U.S. Congress' report emphasized that Chile is the country best qualified to enter into a free trade agreement with the United States, it objected to the fact that Chile lacks clear regulations in several key areas, including the treatment of toxic waste. [passage omitted on U.S. ambassador's remarks]

[Begin Finance Minister Alejandro Foxley recording] I can assure you that this will not be an obstacle. The environmental policies that this administration already is implementing and that, we hope, the next administration also will implement, will place Chile at the head of countries that have given priority attention to this issue. [end recording]

Minister Foxley emphasized that these policies are epitomized by several bills and the \$300 million the Chilean Government and private businessmen will invest in environmental projects.

[Begin Foxley recording] Our country is quickly becoming aware that this is a priority issue, not because some other country has decided that it should be, but because Chileans themselves feel that this is the case. [end recording]

ECUADOR

President Borja Warns Against Radioactive Waste Deals

PA2606163592 Quito Voz de los Andes in Spanish
1130 GMT 26 Jun 92

[Text] President Rodrigo Borja Cevallos has issued a serious warning against what he called the international mafia, which plans to deposit toxic and radioactive waste from industrialized countries in Ecuador.

[Begin recording] [Borja] My government will not let anyone turn Ecuador into a dump for toxic, hospital, and—as often happens—radioactive waste through dirty deals involving enormous amounts of money. We are investigating lawyers, businessmen, and scheming foreigners in Ecuador. They want to turn our country into a dump for toxic waste not wanted by industrialized countries, and they want to pass it off on us. Ecuador will not allow this. This is an extremely dangerous international mafia. Let the mafiosi know we will stop this, and we will not let them turn our country into a dump where they throw all the toxic waste from industrialized countries.

[Unidentified Reporter] What will you do if some of these mafiosi flee the country?

[Borja] Ah, it is better if they flee the country. I want to....

[Reporter, interrupting] Will the police take action?

[Borja] I would rather have the mafiosi flee the country. They know this, because one of them has already been arrested. He was investigated, and he was warned. The actions have barely started.

[Reporter] What is his name? Who is he?

[Borja] There is no need to mention the name. All that is....

[Reporter, interrupting] Has there been any official report?

[Borja] There has been no official information, and there will be no official information.

[Reporter] Will there be surprises?

[Borja] The mafiosi already know they will not be able to do here what they have done in other countries—meaning to deposit these drums of toxic waste that pollute the environment and cause irreparable damage to nature. [end recording]

HONDURAS

Debt to Japan Restructured; Other Countries Offer To Renegotiate Debt

PA2506205492 San Pedro Sula LA PRENSA in Spanish
25 Jun 92 p 3

[Text] Approximately \$77 million in debt owed by Honduras to Japanese financial credit institutions were restructured on 24 June with the exchange of documents signed by Honduran Foreign Minister Mario Carias Zapata, and Katsuo Tomita, Japanese Embassy acting charge de affairs. The restructuring was guaranteed by the Japanese Government.

The signing ceremony took place at the Foreign Relations Ministry, attended by representatives from the Finance and Public Credit Ministry as well as a Japanese diplomatic delegation.

The document exchange includes postponed debt payments with the Ultramar Economic Cooperation Fund, the Export and Import Bank of Japan, and other insured commercial credits. The total restructured amount is close to \$77 million, or approximately 416 million Lempiras.

The refinancing of overdue debt is based on the Paris Club Agreement signed on 14 September 1990. This is the first time this type of document has been signed by Honduras and Japan.

According to Carias Zapata, debt restructuring provides considerable support to the structural economic adjustment program the government is currently implementing. The funds can now be invested in social projects, resolving pressing needs, and in reorganizing the Honduran economy.

Minister Carias Zapata indicated that the industrialized countries have initiated a consultative and negotiating process with the Honduran Government on debt restructuring. The document exchange is, thus, part of said process.

Environment

The Honduran foreign minister added that debt restructuring has been offered within the framework of the world environment conference, and that there are creditor countries who have offered to renegotiate and forgive part of their debt, as well as provide official assistance to countries willing to implement environmental programs.

He pointed out that "one of the countries that made the announcement in Rio de Janeiro is Canada. Canada has also approved Honduran Ambassador Ernesto Crespo. Honduras is on a list of approximately 10 Latin American countries that have unsettled debts with Canada which could be forgiven and reprogrammed in terms of environmental conservation programs".

Instructions on this are being forwarded to the Honduran Embassy in Canada.

President Callejas Announces Ban on Lumber Activities

PA0607223592 Tegucigalpa EL HERALDO in Spanish
6 Jul 92 p 38

[Text] Las Marias, Gracias a Dios—On 4 July, President Rafael Leonardo Callejas announced in La Mosquitia that the government will "permanently and definitively" ban lumber activities in that part of the country.

During a two-day tour in which he camped in the jungle biospheric area near the Platano River, President Callejas had a close look at the destruction caused to the natural reserve. He said that short-term measures have been adopted to prevent any further deterioration of the area.

Callejas said that the measures will include creating a special commission for biospheric problems, made up of officials from the Ministries of Defense and Natural Resources and institutions such as the Honduran Corporation for Forest Development, the National Agrarian Institute, and the National Commission on the Environment.

Callejas said he is studying the possibility of expanding the size of the reserve by incorporating the Wampu and Patuca Regions and part of the Agalta Mountain Range, to have an environmental protection zone of 10 sq km of humid tropical forest.

He said that the first step will be delimiting the zone, for which the government has assigned a fund of 2.5 million lempiras.

The activities will include relocating ethnic groups and persons that are not natives of the Platano and Patuca River regions to areas outside the protection and reserve areas.

"While the delimitation takes place during the next few months, we will act firmly to prevent further deterioration of the environment," he added.

He noted that prohibitions will include not permitting the use of mechanical saws, and in general, banning all lumber activities.

Callejas said that as the presence of the Armed Forces in environmental protection areas is increased, further assistance can be requested from the Japanese and Canadian Governments to take care of approximately 10 percent of the tropical-humid forests in the national territory.

He added that in that sense, the government is currently conducting intensive efforts to obtain a donation of 40 million lempiras from the German Reconstruction and Development Bank (KfW) to implement a gigantic project for the management and protection of the reserve area, which the United Nations declared "World Patrimony."

Although Honduran laws do not address "ecological crimes"—which will soon be incorporated into the penal code—Callejas praised the activities conducted by the Armed Forces in the zone. The military institution recently confiscated more than 60,000 feet of dark wood [madera de color] illegally taken from the southern part of the biospheric area.

"Although some groups may criticize those actions, in my opinion they deserve my total support," President Callejas stressed.

MEXICO

Capital Area Citizens Polled on Pollution

92CA0173Z Mexico City NEXOS in Spanish No 173,
May 92 pp 69-71

[Text]

Survey Corner: NEXOS Sounds Out Public Opinion

More or Less Pollution?

Environmental pollution, the focus of attention of capital city residents, has become the most important public problem in Mexico City. How could the prevailing attitude towards this problem in the capital be described? What effect does it have on the public's assessment of the authorities? Whom do capital city residents blame for pollution? What solutions enjoy the greatest consensus? In what spirit are the government's measures to deal with the problem being accepted? NEXOS commissioned Opinion Profesional to conduct a poll in the ZMCM [Mexico City Metropolitan Area] to

investigate this complex issue and answer these questions. The survey was taken among a sample of homes in the ZMCM this past 30 March and consisted of 1,000 interviews, 992 of them successful.

The population of the ZMCM is very well-informed about and aware of the situation and the government's measures to deal with the so-called "environmental emergency." No other government measures have achieved such a high level of public awareness in so short a time. Some 95 percent said that they were aware of pollution levels, and 80 percent correctly indicated the "imeca" [Metropolitan Air Quality Index] ozone level recorded the day before the poll. Moreover, 92 percent of the respondents were thoroughly familiar with the measures that the city government took during the emergency.

This high level of awareness translates into a mood that the public describes as "concern" (50 percent) or "uneasiness" (20 percent), although only one-fourth of the respondents said that they were "alarmed" or "angered" by the emergency.

As a result of the emergency, which of the following words best describes the public's mood?

Description	Percent
Concern	48.3
Alarm	20.6
Uneasiness	16.5
Anger	7.8

This concern seems to stem from the idea that the situation "is under control" (20 percent) or "partly" under control (40 percent). Only a third of the respondents say that the situation is "out of control" (36 percent). Another third of the population is satisfied (36 percent) with the way in which the problem is being addressed, but more people say that they are "far from satisfied" (28 percent) or "dissatisfied" (21 percent). In addition, 53 percent feel that the emergency measures were not timely, and 56 percent that they are inadequate.

Do you think that the capital city government has pollution well enough under control to prevent it from reaching high levels again, or has pollution gotten out of control?

Response	Percent
Partly under control	39.3
Out of control	30.6
Under control	18.3
Not sure/no answer	11.7

How would you describe the measures that the capital city government has taken this year to combat pollution?

Response	Percent
Appropriate	55.7
Inappropriate	31.5

Useful	51.4
Useless	21
Adequate	30.2
Inadequate	50.1
Timely	36.7
Too late	53.2

Adding in "not sure/no answer" yields 100 percent.

Even though the public is not fully satisfied with the government's response, the specific measures taken to deal with the emergency enjoy consensus support among the population and are viewed positively. There was majority support for expanding the "Don't Drive Today" program to two days (68 percent), and most feel that the measures are adequate (56 percent) and will help overcome the emergency (51 percent). Expanding the program to restrict automobile use bolsters the consensus. People say they are willing to do "whatever is necessary."

By and large, there is no clear consensus about the effectiveness of the "Don't Drive Today" program. One-fourth feel that the program "has been a success," while 20 percent think that "it is a failure." A plurality (40 percent) feel that the program has been "partly" successful. The public feels that the program has prompted the purchase of more cars.

Do you agree or disagree with the extension of the "Don't Drive Today" program to two days?

Response	Percent
Agree	68.8
Disagree	24.5
Not sure/no answer	6.7

It bears noting that polls gauge "attitudes" and can hardly measure or predict behavior. A respondent may tell the pollster that he identifies with the positive attitude of leaving his car at home, but he will not necessarily do so. A poll can thus gauge a positive attitude toward a serious problem, but it cannot predict whether the respondents who said they held such an attitude will try to avoid the restrictions associated with the measure.

The concern that people have expressed about the government's response (which people acknowledge and agree with, to be sure) does not seem to directly influence their assessment of the authorities. Most say that the emergency and the response by DDF [Federal District Department] authorities to it "have not changed" their previous opinion of the mayor. Moreover, the public feels that the problem is not attributable to the government and acknowledges that while the measures being taken are belated and inadequate, they are measures nonetheless and are deemed appropriate and effective in tackling the emergency. Dissatisfaction clearly stems from the feeling that the authorities ought to take additional measures.

In the wake of the recent measures to combat pollution, do you have a better or worse opinion of Mexico City Mayor Manuel Camacho Solis?

Response	Percent
The same	58.5
Better	19.7
Worse	12.6

As far as capital city residents are concerned, industry is mainly to blame for pollution (39 percent), and the respondents are reluctant to believe that the problem stems from automobile use, as only 12 percent think so. In fact, a third of the respondents (36 percent) feel that motorists have done the most to resolve the problem.

As far as you are concerned, which of the following groups or individuals is mainly to blame for pollution?

Response	Percent
Industry	39.2
DDF mayor	15.3
Secretary of urban development and ecology	12.1
Motorists	11.9
The president	8.3

Adding in "not sure/no answer" yields 100 percent

Who do you think has done the most to resolve the pollution problem?

Response	Percent
Motorists	35.7
President Salinas	20.2
The mayor	11.4
Industrialists	6.9
Urban development and ecology secretary	5

Adding in "not sure/no answer" yields 100 percent

The respondents can be grouped into two categories of opposing attitudes. On the one hand there are those who hold moderate views on the issues under consideration, and on the other hand are those who hold extreme opinions on the situation and the people to blame for it.

The consensus views are determined by the moderates. This segment of the public is "concerned" or "uneasy" (70 percent) about the situation and is willing to go along with whatever steps the authorities order to solve the problem. They say that the extension of the "Don't Drive Today" program to two days ought to be kept in place "as long as necessary" or "as long the authorities decide" (58 percent). They agree more with the government's actions and do not blame the authorities for the problem.

The people holding extreme views are "alarmed" or "angered" by the situation, are dissatisfied with the measures taken, blame the government for the situation, and feel that it is out of control. By and large, this

segment has more definite opinions; the percentage of "not sure" responses is lower than the average for the total population.

Greater alarm over the situation is not associated with criticism of or complaints about the authorities. On the contrary, those who described the situation in more alarmist terms (for example, saying they agreed with the measures because "you cannot breathe anymore") were more satisfied with the government's response than the moderates.

If you had the opportunity to propose pollution-control measures to the government, which would you propose?

Response	Percent
Remove industries from the valley	12.2
Remove nonlocal cars	5.2
More effective inspections	4.8
Improve public transport	4.1
Prevent cheating in industry	4.1
Decentralization	3.4
Temporary shutdown of industries	2.9
Preserve forests and green areas	2.2
Eliminate cheating in inspections	2.2
Improve gasoline	2.2

VENEZUELA

Polluted Reservoir May Become National Park

92W/N0616A Caracas EL UNIVERSAL in Spanish
Section 2 31 May 92 p 28

[Article by Victor Hugo Majano]

[Text] The La Mariposa reservoir is in danger from the environmental damage and pollution generated around it, putting the health of the inhabitants of the metropolitan area, who obtain 25 percent of the water they consume from the reservoir, at risk.

According to Center for Development and the Environment [Cenda] Director Miguel Mata, there are currently at least nine environmental impact factors in the La Mariposa watershed that seriously threaten the quality of the water extracted from the reservoir.

These environmental impact factors are:

- The emergence of marginal zones on land formerly belonging to Inos, especially in the outskirts of the El Cuji and Figueroa communities.
- The discharge of sewage into bodies of water within the watershed that flow directly into the reservoir.
- The existence of ranching and chicken processing plants, which discharge their wastes into the currents of water, in the communities of Pacheco and El

Amarillo. These wastes include blood and animal guts. These industries also foul the air, which has resulted in nasal and throat infections among the inhabitants of the area.

- The existence of pig farms, which also contaminate bodies of water, in the towns of San Diego and Figueroa.
- The spilling of residential sewage into the watershed because of overflowing septic tanks and the lack of sewers in the communities surrounding the reservoir.
- Slash and burn practices, which have resulted in diminished forested areas and could cause changes in rain patterns.
- Erosion.
- Polluting agricultural practices, since the producers (most of them of Portuguese nationality), in their eagerness to make quick money, use insecticides and chemical fertilizers indiscriminately. This affects the soil, the fauna, the flora, and the people who end up inhaling the chemicals.
- There are plans to build a cemetery on the Cantarrana Gap microwatershed, in the Los Desamparados sector, which would reduce the waterflow.

In Mata's view, the effect of these environmental impacts on the country's principal reservoir is a problem of national security, requiring immediate solutions promoted by civil society, the national environmental authorities, and the municipal governments of the metropolitan area.

Environmental Diagnostic and Cure

Cenda has been organizing a community movement in the zone with a view toward promoting solutions to the problem. To that end, its first proposal is to diagnose the environmental situation of the watershed.

To do this they are creating technical teams to examine, as closely as possible, what is happening. As a result of this diagnostic, a proposal to clean up the watershed will be made, with a view to ensuring the quality of the water in the metropolitan area.

With that concrete proposal and with the backing of the community and the authorities, it will be possible to solicit funds from some multilateral financial organizations to implement the cleanup.

For that reason, in Mata's view, it is necessary that the people and authorities of Caracas become aware that the water of La Mariposa is their water and that it must therefore be protected.

Likewise Cenda, which is acting as a technical support organization for the communities, believes that currently there is a need to declare the La Mariposa watershed a national park. That would facilitate more effective action on the part of the environmental police (National Guard) in the area and would permit the punishment of any damage to the surrounding area as a crime in violation of the Environmental Penal Law.

Pig Farms and Chicken Processors Must Go

Although it is the technical diagnostic that will formally state what cleanup activities are to be undertaken, Mata anticipates this in formulating the basic activities to reduce the environmental damage at the watershed.

In the first place, he harbors no doubts that the pig farms of San Diego and Figueroa and the ranchers and chicken processors of Pacheco and Amarillo must definitely leave the area. "They are completely incompatible activities," he said. Large volumes of water are used at those places, which flow directly into the watershed, carrying with them highly polluted wastes. In addition, it has been determined that these wastes that are the principal food source for bora, which has on various occasions threatened the operations of the reservoir.

Furthermore, it will be necessary to divert the discharge of water used in these operations away from the watershed. However, there are technical problems associated with this that will only be resolved with great difficulty. It is practically impossible to remove these waters to another watershed because of the differences in altitude. "It occurs to me that, technically, we could use treatment plants in the communities, which would permit decreased levels of pollution. Nevertheless, we would have to look at the economics, hence the importance of international financial support," Mata explained.

Likewise, it has been proposed that urban development in the sector be suspended because, among other reasons, it is a highly seismic area. That would depend on the municipal authorities, who recently have acted very sensibly, especially in the town of Los Salias.

With respect to the burning and destruction of forest vegetation, Mata said he believes that what is required is a serious process of environmental education. "There is no awareness of the damage that causes, and a high proportion of the fires are man-made. The forested areas have declined alarmingly, and development advances after the fires," the environmental activist noted.

The pollution caused by agrochemicals used in agricultural activities requires a program that combines education with coercion because Decree 2472 of April 1989, which created the La Mariposa protected zone, expressly prohibits using that type of fertilizer. "Most of those farmers come from countries where organic fertilizers are used, which could be seen as an advantage because they already know how to use them. However, the farmers are of a very low cultural level, and in their desire to make money quickly, they indiscriminately use agrochemicals. If the product instructions recommend using 10 kg they use 20, with the intention of obtaining better results.

The Community Will Use Legal Instruments

According to Mata, Cenda's goal is to reactivate the environmentalist movement in defense of La Mariposa, from the Cornada del Guayabo to the town of Figueroa.

that is, throughout the reservoir's entire watershed. "It is important to emphasize that we are opposed to environmental impact, not to those who undertake activities in the area. We do not want to hurt anyone, but if something causes damage to the watershed we must confront it," he warned.

In this environmental struggle, the community and ecological organizations will use three legal instruments of recent origin. One is the environmental impact decree of August 1991, which requires the presentation of an environmental impact study to carry out any development. Likewise, it provides any citizen or community the opportunity to examine the study, which will reside in the local MARNR [Ministry of Environment and Renewable Natural Resources] offices, and make relevant observations against it.

The other instrument is a decree allowing any citizen to act as an environmental guard and to denounce to the authorities in the area the damage of which they are aware.

Finally, there is the Environmental Criminal Law, which came into effect 3 April and which constitutes a legally dissuasive and reparative instrument for addressing environmental damage.

In Mata's view, the key to the process of defending La Mariposa is the organization of civil society, the reason that Cenda, in addition to denouncing violations, promotes the formulation of a proposal emanating from the community itself, which the State is obliged to implement. "They have to understand that this is Caracas's water, the water we all drink," he emphasized.

REGIONAL AFFAIRS

First Regional Gulf Water Conference To Be Held in Dubayy

92W05584 Dubayy AL-BAYAN in Arabic
14 May 92 p 7

[Article by 'Abd-al-Bari Bin-Suqat]

[Text] Under the auspices of His Highness Shaykh Maktum Bin-Rashid Al Maktum, vice president of the state, prime minister, and ruler of Dubayy, the first Gulf conference on water will held from next October 10 to 14, in the Dubayy Metropolitan Hotel. The Ministry of Electricity and Water, the Ministry of Agriculture and Fisheries, the Dubayy Electricity and Water Authority, the Emirates University, the Municipality of Dubayy, the Association of Water Science and Technology, and the General Secretariat of the GCC [Gulf Cooperation Council] will participate in organizing it.

His excellency Hamid Bin-Nasir al-Uways, minister of electricity and water, stressed the importance of the conference, it being the first of its kind at the regional level. In a comprehensive manner, it will scientifically and practically discuss issues pertaining to water, since it is life's vital artery.

His excellency pointed to the anxiety that everyone feels, whether locally, regionally, or internationally, because of the great drop in water levels in general. He said that the depletion of underground water is so often discussed that appropriate importance must be given to this issue, which touches upon the security, stability, and comfort of the peoples of the region.

His excellency mentioned that the idea for the conference grew out of this, and it will be the start of a new phase of joint action and building in this field.

That was stated by Sa'ud al-Humaydan, director of planning, who said that the organizing committee of the first Gulf water conference has received 110 papers from 33 Gulf government agencies that have expressed an interest in participating in the conference. It met with a great response unexpected by the committee, which confirms the importance of this scientific Gulf gathering, the first of its kind.

Sa'ud al-Humaydan stated that the committee's program had previously been drawn up for the presentation and discussion of 45 papers, but in view of the great response, the committee is currently considering a review of the conference schedule and agenda, in order to allow the discussion of more papers and more comprehensive papers. This would include making arrangements to discuss the scientific program, which includes nine different articles.

He added that a scientific committee had been formed to study and evaluate the papers submitted, to select the best to be presented at the conference, and to designate

the leading papers for each session, in addition to other papers. Chairmen have been selected for the nine scientific sessions scheduled during the conference.

Al-Humaydan explained that the papers presented and distributed to the scientific sessions will deal with subjects as follows: 22 papers on natural sources of water; 12 papers on desalinization; eight papers on water and sewage networks; 15 papers on water treatment and recycling; nine papers on agricultural irrigation; four papers on water quality; 12 papers on administration and guidance; eight papers on new alternatives and sources; and eight papers on the environmental effects of water usage.

He also explained that the committee had decided to award prizes to the best paper presented and to the best scientific session, with respect to content and organization. This would be done through a special committee that would be formed to make these decisions.

INDIA

Ratification of Basel Convention Welcomed

92W06284 Madras INDIAN EXPRESS in English
27 May 92 p 8

[Editorial] The Cabinet decision to ratify the Basel Convention last week needs to be welcomed. The Basel Convention is the only international instrument available at present to control the trans-boundary movement of hazardous and other wastes. The need for an international convention on the trans-boundary movement of hazardous wastes had become particularly acute given the uncontrolled dumping of millions of tonnes of hazardous wastes generated by the industrialized countries in the less developed countries, especially in Africa and Eastern Europe. While the generation of hazardous wastes in industrialized countries has increased dramatically, the cost of disposal has gone up and the availability of disposal facilities, particularly landfill space, has shrunk. This has led to a growing tendency to export the wastes to the developing countries. Not only is the disposal cost substantially less in these countries, they also do not have the necessary legal and institutional framework to effectively control and prevent the dumping of hazardous wastes in their territories. In addition, they do not have the technical capacity to dispose of such wastes in a manner that would not harm their environment or affect the health of their citizens. The net result is that toxic wastes are deposited illegally and without any precautions in the developing world. The Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal, seeks to redress this situation.

India too has also become a potential target for what has been termed "toxic terrorism." With the liberalization of the economy, at least two cases of NRIs [Nonresident Indian] attempting to bring in hazardous wastes to India, ostensibly for reprocessing, have come to light. The

attempt to import 2.5 lakh tonnes of oil sludge per annum in one case and 4,500 tonnes of lead waste from Canada in another, were thwarted by sheer vigilance and without any of the provisions of the Basel Convention being applied. Now that India has cleared the decks for ratifying the convention, there exists a powerful legal instrument to see that the industrialized world is unable to dump such toxic wastes in the country. For the ultimate aim of the provisions of the Basel Convention is to attempt to reduce the generation and the trans-boundary movement of hazardous and other wastes as well as to ensure that the disposal of such wastes is done in an environmentally sound manner. The convention does not put a blanket ban on the trans-boundary movement of hazardous wastes but makes the movement subject to elaborate control measures based on the principle of prior informed consent. The convention also defines illegal traffic in hazardous wastes and enjoins all signatory countries to introduce national legislation to prevent and punish such traffic. The Basel Convention as it exists at present is by no means perfect—it does not ban the trans-boundary movement completely and there is perhaps an inadequate recognition of the lack of technical capacity of the developing countries to use the control mechanisms appropriately. But at least it marks a beginning in recognizing an important problem.

Scientist Describes Pollution of Indian Rivers

92W N0627A Madras *THE HINDU* in English
30 May 92 p 6

[Text] Bombay, May 29—Major rivers like the Ganga, the Narmada, the Tapi, the Yamuna and the Cauvery are polluted beyond redemption as they have come to serve as conduits for sludge from factories and untreated sewage, former chairman of the Maharashtra Pollution Control Board, Mr C.D. Oommachen, said here on Friday.

Delivering the keynote address to an all-India convention on "Water pollution control—modern technologies" Mr Oommachen said the Kalu river flowing through Bombay's industrial belt was so spoiled that any child that drank a litre of milk daily of a cow feeding on vegetation near the river would consume a monthly quantity of mercury far exceeding the safety limit.

Big and small rivers, he noted, had become unfit for human consumption and dangerous for living organisms such as fish, turtles, water birds. "The Ganga is possibly the worst affected river in the world with 114 cities dumping about 900 million liters per day of untreated sewage into it. While DDT factories, tanneries, pulp and paper mills, petrochemical units, fertilizer factories and rubber industries use the river as a sink for their liquid wastes," he said.

The three-day seminar is organized by the National Center for Technical Development (NTCD), Bombay.

Delhi Air Pollution Increases by 75 Percent

92W N0626A Bombay *THE TIMES OF INDIA*
in English 1 Jun 92 p 13

[Article by Shirly Thomas Bajaj]

[Text] New Delhi, May 31—One in every three persons in the capital is suffering from respiratory and other pollution-related diseases. The incidence of such diseases in Delhi is 12 times the national average, which is not surprising, considering the 75 percent increase in air pollution recorded here in the last decade.

The Earth Summit, to be held next week, has generated a lot of interest in the global environment. But what is happening to the environment in Delhi, considered the fourth most polluted city of the world?

"The situation is of great concern to all ecologists," says environmentalist, Mr Ashish Kothari. The major air pollutant worrying Delhites is vehicular exhaust, responsible for 60 percent of the air pollution. About 1,000 tonnes of pollutants are released by the 2 million-odd vehicles in Delhi as against 574 tonnes in a major industrial city like Bombay, according to Mr Virendra Singh, secretary, environment in the Delhi administration.

Vehicular exhaust comprises lead and a number of oxides, including carbon monoxide, which are hazardous to health, he says. The carbon monoxide level in fact is reported to be 33 lakhs per million (PPM) to 85 (PPM) in various traffic crossings of the capital. The intake of carbon monoxide at 30 PPM emission for four hours can cause dizziness and nausea while an intake of 100 PPM can be lethal.

Though the authorities have awakened to the gravity of the situation, their plans to check pollution are poorly targeted. As in other countries the burden of pollution control should be on the manufacturers of vehicles, who should put only environment-friendly vehicles, rather than post-manufacture checks on pollution levels, Mr Kothari says. An alarming fact about vehicular exhaust is that as it is closer to the ground, it is more lethal than the exhaust of the thermal power stations in Delhi. Dr S. Trivedi of the central pollution board adds.

The three power stations are also a cause for air pollution because they emit fly ash, while generating electricity. The Badarpur plant is said to emit 3,500 tonnes of fly ash every day, Dr Trivedi says. Realizing the seriousness of the problem the authorities installed electrostatic precipitators in the plants, which trap this fly ash and pass it on to the Yamuna bed where it is dried. On extremely windy days the ash flies out of the river bed into the atmosphere. Thus the recent incident where a thick cloud of fly ash from the Indraprastha plant enveloped ITO and nearby areas.

Another fact which worries many is that in the winter months Delhi is virtually a gas chamber. Explaining this Mr Kothari says, "in summers there is a high dispersion

effect, that is the polluted air rises and the effect of it is less on the pollution. But during winters as the air does not rise, the polluted air is trapped close to the earth and recycled." But as the winters here are not so severe, this inversion effect shows up only a few days of the year, unlike places such as London, he assures.

The suspended particulate matter (SPM) of the city also adds to the pollution. The SPM level in 1990 was 780 tonnes per day. In just one year it had increased to 1,100 tonnes. This phenomenon is natural in as much as the sand which comes in from Rajasthan. But is unnatural in that had the thick forest cover that surrounded Delhi remained intact, Delhi would not be facing this problem, Mr Kothari informs. In fact the largest green area in the capital has been depleted by over 40 percent in the last couple of decades.

Water pollution is also something which dogs the city. In fact Yamuna is quite often referred to as an open sewer. The entire city's sewage is disposed into the river and this water is later treated. But in some places the pipe bringing in the sewage is near the pipe carrying the treated water and if by any chance there is a leak, the treated water can get contaminated. This is when the epidemics spread, Mr Kothari says. However, the authorities have charted out a Rupees 340-crore plan to clean the river, which is the source of drinking water for more than 60 percent of the city's population.

The fact that one-third of the capital population use untreated water is alarming.

Environment Ministry Issues Conservation Policy Document

92WN0629A Madras *THE HINDU* in English 3 Jun 92 p 6

[Text] New Delhi, June 2—A National Conservation Strategy and Policy Statement on Environment and Development, which seeks to 'weave environmental considerations into the fabric of our national life and of our development process', was released here today by Mr Kamal Nath, Minister for Environment and Forests.

The statement, which has been approved by the Cabinet, is the result of consultations spread over two years between the Center and the States, and professionals, non-governmental organizations and academic institutions. The 36-page document deals with various facets of environment and development.

The document deals with action taken through various regulatory and promotional measures, the agenda for future action and development policies from an environment perspective in key sectors such as agriculture, energy generation, forestry, industrial development, transportation and human settlements.

However, in the field of international cooperation on global environmental issues, the document boldly announces that the country will not accept slowing down

of development in the name of environment. India has done nothing to damage the global environment, and can do little to save it. The resources that the country has are required urgently for education, nutrition, health services, drinking water, housing, sanitation and investments in industry and infrastructure for agriculture.

The statement warns that the development process in the short run can add to the emissions which cause global problems (such as carbon-dioxide emissions) but these can easily be compensated by a marginal reduction in emissions from industrialized countries. While the country will strive to adopt environmentally sound policies, it is only with new and additional funding and with easier transfer of technology that India will be able to strengthen its capacity to deal with environmental problems.

The document stresses that population control strategies are crucial for any meaningful environment policy and that the relationship between the life support systems and increasing population must be stabilized. The loss of forests and therefore the wild life habitats had endangered an estimated 1500 species, according to the Botanical and Zoological Surveys of India. The statement warns that gene erosion could seriously affect the prospects of getting full economic benefits from recent advances in molecular biology and genetic engineering.

It deals with land erosion and water pollution, the question of loss of grazing lands even as cattle population increases, the threat of a food crisis in the future unless land and water resources are better managed, air pollution and the need for making industry responsible in regard to anti-pollution measures.

Releasing the statement here today, Mr Kamal Nath also announced that soon a hundred Centrally-sponsored 'partiyavarani vahinis' or environment brigades would be set up in the States for increasing environment awareness among the youth, for reporting illegal acts pertaining to forests, wildlife and pollution control laws, and for monitoring and collection of air, water qualities.

PAKISTAN

Country's Need To Overcome Skepticism on Environmental Issues Examined

92WN0615B Islamabad *THE MUSLIM* in English 5 Jun 92 p 7

[Article: "Poverty Is the Biggest Polluter—It Has To Be Eradicated To Control Pollution"]

[Text] Today is the World Environment Day. The United Nations Conference on Environment and Development (UNCED), better known as the Earth Summit is also underway in Rio de Janeiro. Environment seems to be the movement of the nineties, and beyond. From North to South and East to West, governments and

peoples are mobilizing efforts to save the only planet they have. Environment is an idea whose time has come.

In Pakistan, however it has yet to catch the imagination of the people. The issue is viewed with scepticism and suspicion. Environmental consciousness is confined to a very small, educated urban minority. The common fear is "can Pakistan really afford to be involved in environmental issues when majority of its population is suffering from poverty, hunger and malnutrition?"

This fear stems from the basic lack of awareness. It is also the biggest hurdle towards launching of a successful environmental movement in Pakistan.

Even the educated, let alone the masses, are wary of the need for preserving our environment. At a recent gathering of intellectuals in Islamabad, one learned senior (ret'd) government servant, spoke for many when he said, "to me it seems that the whole environment business is a western conspiracy against the Third World nations whereby these developing nations are being told to clean up the mess that was created by these industrialised countries."

Do we then, really care? Or better, should we? So the ozone layer in the atmosphere is depleting and the greenhouse gases are increasing the global temperature at the rate of 2-5 degrees a century. Is this of any relevance to a starving woman in Thar desert or to an illiterate old man who has to work twelve hours a day just to sustain his family?

Is it really reasonable to tell rural people that they should not cut forests so that biodiversity can be saved and that forests are "sinks" that absorb carbondioxide thereby reducing its harmful effects in the atmosphere. For developing countries like Pakistan, such reasoning does not seem to make sense considering that for many people cutting trees for firewood and using up other natural resources is a means of livelihood.

It is this attitude that has bred the stereotype that it is only the "rich and the idle" with nothing else to do, who have become environmental crusaders in Pakistan. This derives its analogy from the example of the typical western lady who dotes on her puppy dog and would spend hundreds of dollars on the dog rather than use that money to help a needy person.

This indifference and scepticism can only change if people realise that development and environment issues are linked and one cannot progress without the other.

Development should be weaved around people, not people around development. Similarly, environmental protection is vital. But only because it is a means to promote human development. Poverty is the biggest polluter; therefore poverty has to be eradicated to avoid pollution. Likewise, poverty can be eradicated by preserving the environment so that vital natural resources that sustain human development do not become extinct. It is this important link between environment and

human development which is essential to understand and appreciate the significance of environmental protection in developing countries like Pakistan.

"Sustainable development" refers to such development which occurs without destroying the environment. In other words, enjoying the fruits of development without jeopardizing the prospects of future generations. This has also been termed as "inter-generational equity."

Sustainable development is not something we should aim for out of the goodness of our hearts. We have no choice in this matter. It is the only option available to us. The issue concerning Pakistan and other developing countries is not how much growth, but what kind of growth. Without sustainable development, the net result of development and growth would be negative because that would amount to cutting the same branch we are sitting on.

According to the United Nations Human Development Report 1992, "the call for sustainable development is not simply a call for environmental protection. Instead, sustainable development implies a new concept of economic growth—one that provides fairness and opportunity for all the world's people, not just the privileged few, without further destroying the world's finite natural resources and without compromising the world's carrying capacity."

But the priorities of developing countries are different from those of the industrialised countries. It is true that global warming and ozone depletion might not concern an average Pakistani. There are, however other more immediate environmental problems which cannot be ignored any longer by any sane Pakistani.

At present our key natural resources, land and water are being used at maximum capacity. The demand for water for irrigation purposes, for drinking, and for flushing away chemical wastes, is growing at a fast pace. If the present rate of pollution, which is killing streams and rivers is not halted, Pakistan will soon run out of water resources to meet the ever growing demand. The resultant loss will not be limited to environment alone.

Air in most urban centres is highly polluted due to industrial and vehicular discharge. Unrestricted industrial development is also leading to deforestation and land degradation. This is destroying agricultural land which will have a direct impact on our economy.

Our main problems are therefore local in nature. Pakistan National Report to the UNCED 1992 says, "the combination of low aggregate income, widespread poverty, and inadequate provision of basic human needs creates an inescapable pressure for rapid socio-economic development. This together with the high rate of population growth, will continue to place the already scarce natural resources—especially land and water—under extreme stress."

The explosive population growth in Pakistan is also directly linked to environmental problems. Increases in rural population growth lead to cutting down of forests for fuelwood and to clear land for agriculture. Inadequate waste disposal facilities lead to dumping wastes in rivers and streams which further contaminate water. This in turn results in spread of various diseases which affect not only the quality of life but also economic productivity and efficiency.

Dr. Mahbubul Haq, former Finance Minister of Pakistan and currently special advisor to the administrator of the U.N development Programme, says:

"Sustainability is not only environmental sustainability; it is also economic and social sustainability...We point out that the loud emergencies have normally received screaming headlines—so far, global warming, ozone layers depletion, and so on—and not the silent emergencies of polluted water, desertification, eroded land, even though millions of people are dying every day from silent emergencies and not a single person has died so far from loud emergencies."

Katchi Abadis	
Number of Katchi Abadis	
Total	2,322.00
Above 5000 people	432.00
Katchi Abadis of above 5,000 people as % of total katchi abadis	18.60
Population Residing in Katchi Abadis (000)	
Total	5,506.00
% of total urban population	23.30
Source: Kemal et al (1990)	

It is here that we find the attitude of the North whereby it is ignoring the immediate concerns of the South and refusing to transfer the means, be they financial or technological, which the South could use to eradicate poverty and conserve the environment.

Says Dr. Mahbubul Haq, "We point out that the problems of global environment and global poverty are interlinked, and those who would like to solve the problem of global environment should first address the problems of global poverty. Because out of a very unequal world the concept of "One Planet" cannot emerge unless there's also a greater sharing of opportunity on that planet."

Anil Agarwal and Sunita Narain, in an article in the *Development Forum* of May-June 1992, have written, "It is ironic that those who have exploited global resources the most are now preaching to those who have been largely frugal and sparing. It is obvious that this moralizing must stop and be replaced by honest and straightforward actions by the North."

Pakistan is facing environmental problems of crisis proportions. We must realise that environment is not limited to "loud emergencies" like global warming etc. which are fervently propounded by the North. They are important in their own right. But we have problems which affect our daily lives and which, if not corrected, will have adverse affects not only on us but on future generations of Pakistanis.

The days of scepticism should be over. We are destroying our country and the poor, who we are so eager to help, are suffering the most. Environment preservation is very much our own problem and we Pakistanis must stop its destruction. Today the river Ravi is dying. Tomorrow it could be us. Give it a thought.

Provisions of National Conservation Action Plan Detailed

92W/N0615A Islamabad THE MUSLIM in English
5 Jun 92 p 7

[Article by Syed Fahd Husain: "A Giant Leap for Pakistan's Environment"]

[Text] The National Conservation Strategy (NCS) of Pakistan was approved by the Federal Cabinet on March 1, 1992. It is a comprehensive action plan which spells out the requirements and the steps needed to implement them to preserve the environment of Pakistan.

The NCS calls for an investment of Rupees 150.7 billion over the next ten years. It has recommended 14 core programmes for implementation. Within these, 68 specific programmes have been identified and their details chalked out.

NCS is the result of collaborative efforts between the World Conservation Union (IUCN) and the federal Government. It was back in 1983 that a paper was published outlining the NCS. This was followed by a feasibility study in 1986. In 1988, a National Steering Committee was formed which produced a work plan and an agenda and later on approved the National Conservation Strategy. The committee comprised people from both public and private sectors.

The main thrust of the NCS is to ensure a balance between economic development and the conservation and use of Pakistan's natural resources.

Over 3,000 agencies, institutions, organisations, experts and citizens were involved in the formulation of the Strategy.

They produced more than 5,000 pages of reports on how environment is affecting economic sectors and vice versa. Exhaustive field-work was conducted to involve small rural communities which are the ones most dependent on natural resources.

The NCS has three main objectives:

—Conservation of natural resources

- Sustainable development
- Improved efficiency in the use and management of resources.

A natural extension of these objectives is the three operating principles that outline the general methodology needed to achieve these objectives. They are:

- achieve greater public partnership in development and management,
- merge environment and economics in decision-making, and
- focus on durable improvement in the quality of life.

The National Conservation Strategy is a bold step for a country like Pakistan where environmental awareness is abysmally low. Although the NCS is a result of the collaboration of both the government and the private sector, the fact remains that its utility is recognized by few. And NCS lays great stress on the support of people and communities to make it a success.

Environmental preservation is not something which the government and a few dedicated individuals can take care of. Everyone has to chip in at every level in order to produce any significant result. With the launching of the NCS, the first stage has been completed as the NCS has produced a blue-print for the whole issue. In the first part of the report, the state of Pakistan's environment has been surveyed with relevant facts and figures. The results are not very flattering.

Twenty percent of the country's 88 million hectares have the potential for agriculture and almost all of it is being utilised. The report says that the main reasons for the low intensity of agriculture are: water and wind erosion, salinity/sodicity, waterlogging, flooding and loss of organic matter. However, the report says: "Yet, Pakistan has ample potential to increase its agriculture products, by multiple cropping and increasing yields per hectare."

Talking about the high levels of water pollution, the NCS says: "Gastrointestinal diseases account for 25-30 percent of hospital cases, and some 60 percent of infant deaths are due to infections and parasitic diseases, most of them water-borne."

In Part 2 of the report, ways and means to improve various sectors of the economy are discussed. This includes recommendations for initiatives like population welfare and the need to make women active and equal partners in development. NCS has integrated population and environment programmes which are estimated to cost Rupees 14 billion. It recognizes that the efforts of the last quarter century in family planning have largely failed. The main reason is the large gap between knowledge and practice. Half of all married couples in Pakistan are aware of some family planning technique—less than 10 percent practice it.

The report accepts that a population of 200 million is inevitable. "It may just be possible for Pakistan to accommodate 200 million people—the number expected to live here sometimes between 2010 and 2013—by adopting sustainable development. But there is no possibility of accommodating, at a decent standard of life, the 400 million people projected to be living in Pakistan by 2035-40."

Part 3 of the report looks at the ways to implement these recommendations. It lists 14 core programmes for priority implementation. These include maintaining soils and croplands increasing irrigation efficiency, supporting forestry and plants, conserving biodiversity, managing urban wastes, integrating population and environmental programmes and preserving the cultural heritage.

It has been proposed that NCS be integrated into the Eighth Five Year Plan and also into plans relating to other sectors of the economy.

The success of the National Conservation Strategy will depend on two main factors. First, proper long-term planning is required to ensure that strategies are implemented to produce the required results. Since governments in Pakistan are not known for achieving long-term objectives (education is a case in point), and would rather go for quick results for political gains, one is prone to be rather sceptical about the ability or the will of the government to do the needful regarding environment.

Second, mass awareness is vital. Although the government has launched a campaign to educate people about the importance of environment, merely putting big advertisements in newspapers will not be enough. Despite its tremendous significance, NCS remains confined to a small majority. Making the man on the street understand the impact of the environment on his daily life is the biggest challenge facing environmentalists in Pakistan. Once that is overcome, half the problem will have been solved.

Benefits of Energy Conservation Program Viewed

92WN0615C Islamabad *THE MUSLIM* in English
6 Jun 92 pp VII-VIII

[Article: "Environmental Benefits of Pakistan's Energy Conservation Programme"]

[Text] Protection of our environment has become one of the most important global issues of our time. Unfortunately, it is mankind's most economically essential activities which are causing dangerous and unprecedented alterations in the earth's climate. This is why energy conservation plays a major role in combatting environmental degradation by minimising the harmful effects of energy consumption.

By far the single most important source of greenhouse gases is the burning of petroleum, natural gas and coal, which releases massive quantities of carbon dioxide into

the atmosphere. The presence of CO₂ and other greenhouse gases is changing the way the atmosphere absorbs the sun's energy and threatening to upset our climate's delicate balance.

The link between environmental degradation and energy consumption has been established beyond doubt. Since industry began consuming fossil fuels some 200 years ago, annual fossil fuel emissions of carbon dioxide have risen from insignificant quantities in 1850 to almost 6,000 million tons of carbon today. As a result, atmospheric concentrations of carbon dioxide have risen to a level higher than any time in the past 100,000 years.

Over the past 200 years, most fossil fuel energy use has occurred in the industrialised countries of the North, and this is still the case today. For example, Pakistan, the eleventh largest nation with over 2 percent of the world's population, is responsible for only 0.2 percent of mankind's fossil fuel emissions of carbon dioxide, while the U.S. is responsible for almost 25 percent, China for around 10 percent and Japan for around 5 percent.

Clearly the major responsibility for taking the lead in reducing greenhouse gas emissions rests with the developed countries. However, the developing countries must also opt for energy conservation in order to protect their relatively less damaged environments and to ease the financial burden caused by their dependence on imported fossil fuels.

As Pakistan's economy continues to grow, our energy demands will continue to double every seven years. Although possessing large conservation resources, Pakistan's conventional energy resource base is limited. Domestic production, although increasing, is still not keeping pace with the economy growing at 6 percent per year and a population increasing by 3 percent annually.

Pakistan cannot afford to continue spending 21 percent of its foreign exchange earnings on imported oil and losing 2 percent of its annual GDP [Gross Domestic Product] due to load-shedding necessitated by a 25 percent gap between peak electricity demand and supply. Under the present circumstances, energy conservation is the cheapest, most readily available and most abundant energy supply option which has the added advantage of reducing greenhouse gas emissions.

Pakistan's conservation resource is calculated to be equal in size to the country's oil resource. A comprehensive national-level energy conservation effort could increase available energy supplies by 15-25 percent in a relatively short time at cost ranging between 1/4 and 1/50 of current energy prices.

Unfortunately, even though energy efficiency often pays for itself, economic distortions and hard-to-break habits too often get in the way. To convince government, industry, businesses and individual consumers to take the necessary steps, the National Energy Conservation Centre (ENERCON) was established in 1986 to plan,

demonstrate and execute a comprehensive nationwide energy conservation programme.

In the six years that ENERCON has been operating, it has made outstanding progress in demonstrating the economic and environmental benefits of energy conservation to industrial, agricultural, commercial and domestic consumers.

ENERCON has been particularly successful in the energy-intensive industrial sector, where the greatest savings can be achieved. Today, ENERCON responds to over 60 requests per month for information and technical advice and has also succeeded in training several private sector firms to deliver such services. To date, ENERCON has identified Rupees 1,500 million in energy savings and realised savings of Rupees 500 million through specific energy conservation measures in various sub-sectors of the economy.

Many of ENERCON's programmes have a dramatic environmental impact. For example, car engine tune-up programmes regularly conducted by ENERCON not only improve fuel efficiency by 10 percent, but also reduce emissions by 50 percent. Now ENERCON, in partnership with the UNDP [United Nations Development Program], is launching a new three-year project early next year to increase energy efficiency and reduce pollution in the road transport section. Funded by a 7 million dollar loan from the Global Environment Facility, the project envisages tuning up 600,000 petrol-powered vehicles and 100,000 diesel-powered vehicles, resulting in a savings of 207 million liters of petroleum, 272 million liters of diesel, and reduction of greenhouse gases equivalent to 0.32 million tons of carbon.

Similarly, ENERCON's boiler replacement and tune-up programmes for industry reduce energy consumption by 5-10 percent and cut hydrocarbon and carbon dioxide emissions by over 50 percent. ENERCON's tractor energy audits, driver training and tune-up programmes produce energy savings of 18 percent and a 50 percent reduction in emissions. In fact, ENERCON's programmes in all four main economic sectors—industry and power, transport, buildings, and agriculture—while aimed at achieving large-scale energy savings, all have a positive environmental impact in reducing emissions and in making wise use of scarce resources.

A recent study conducted in 1990 gives a clearer idea of the tremendous potential of energy conservation in reducing CO₂ emissions. The study, based on some European countries, concludes that there is a 45 percent potential for CO₂ reduction available simply by taking measures to use energy more rationally. Broken down sector-wise, the study identified a 90 percent savings potential in buildings, 70 percent in electrical appliances, 60 percent in cars and aircraft, 50 percent in water heating and 25 percent in industry, power stations, refineries, and heavy road transport.

At the policy level, the National Building Energy Code prepared by ENERCON and introduced in the building

sector for voluntary compliance will later be made mandatory. Its adoption makes Pakistan one of the few countries in the world with such a comprehensive building energy code. Existing law already requires environmental impact studies to be conducted for all large public sector projects, and efforts are in hand to extend this requirement to the private sector. Meanwhile ENERCON's draft National Energy Conservation and Management Law, which seeks to give legislative cover to energy conservation, is in the approval process.

ENERCON has prepared the energy conservation chapter for the 8th Five-Year Plan and set targets for energy conservation through improved management and implementation of nation-wide programmes in various sub-sectors of the economy. ENERCON continues to support least-cost energy supply options, removal of tax and trade barriers to the import and manufacture of energy-efficient equipment, and inclusion of energy analysis and environmental impact studies in all PC-Is.

A wide range of energy conservation services successfully demonstrated by ENERCON are now being picked up by the private sector, and ENERCON is turning its attention to implementing a number of key programmes designed jointly with industry, policy makers, financial institutions and consumers with the objective of reducing energy intensities according to a defined schedule.

Energy conservation means making the most of our energy resources by using our natural endowments wisely, getting the greatest return from our energy investments, and investing in clean energy. This will help us avoid the hidden costs of pollution—wastage of our non-renewable resources, poor management of our renewable resources, and loss of the productivity of our land and people. Conservation not only saves us millions in valuable foreign exchange, it also gives our children a cleaner, pollution-free atmosphere to breathe and brings our apparently national concerns into line with a larger respect for the global environment.

We have ignored the economical and environmental potential of conservation for a long time. As a result, we are losing international competitiveness, and our quality of life stands threatened. We are investing heavily in energy development when these precious resources could be used more effectively in such vital sectors as education and health. Energy conservation is our cheapest supply option, so the time to act is NOW.

National Environmental Priorities Reviewed

92WN061SD Islamabad *THE MUSLIM in English*
6 Jun 92 pp VIII-9

[Article by Mirza Arshad Ali Beg: "Earth Summit and the Environmental Issues in Pakistan"]

[Text] An earth summit is being held from today in Rio de Janeiro to take stock of the environmental issues confronting the world living environment. Human activities

have degraded the living environment to such an extent that the quality of water, air, soil and sea is no longer the same as it used to be only sixty years ago. It is already apparent from several findings that the global ecosystem is under serious stress and that its seriousness is increasing each day. The industrialized countries are clearly the ones which are responsible for creating the present position because in their lust to attain superiority over others they have been indiscriminately exploiting the resources, whether they were their own or of their conquered land, and were least concerned about the environment.

Politics of Environment

The environmental condition in the developing countries has also deteriorated but due to different reasons e.g. (1) they were marginalised to hold a defensive position limiting themselves to bare survival and (2) they remained a follower of the plans and policies set by the developed countries. They, therefore, went for industrialization without consolidating their gains in agriculture whose output has not been optimized due to poor management practices. The environmental problems of the two sets of countries are consequently quite different from one another. The difference stems in the two cases from affluence and deficiency. The former are trying to maintain a status quo and have through their actions and reactions demonstrated that they would not like the latter to catch up with them.

The industrialized countries have, in order to maintain superiority, waged wars and destroyed the resources of others. The recent war between affluent countries and Iraq is a clear example of this attitude by the former who were the champions at the World Conference on the Environment 20 years ago at Stockholm. These are the countries which claim to have identified the major environmental issues confronting the Globe but they are exactly the one which disregard them when their superiority is faced with even the slightest challenge. Environmental issues thus comprise a game of politics played more for maintaining superiority than for protecting the environment.

The environmental issues which have become very important during recent years range from global climatic change to indoor air pollution, from stratospheric ozone layer depletion and acid rain to urban smog, from hazard wastes washing up the shoreline to invisible contamination of groundwater, from deficiency of water to city waterlogged areas, from the impoverished rural areas and katchi abadis or squatter settlements to the planned urban areas and so on. The difference from the normals in each case is highly excessive.

The Bangladesh floods of April last year, have attracted the attention of the world body. Although global issues like global warming, greenhouse effect, ozone layer depletion and deforestation have, during the course of the last 15 years, become very important yet the politics of environment linked the flood havoc with the burning

oil wells in Kuwait and sidelined the heavy air raids, bombings, artillery fire and missile attacks during the war, a war that could be avoided. That party is held responsible in the court of law which can avoid an accident but does not do so. In the Gulf war, therefore, the industrialized countries are to be held responsible for the damage to the environment.

Greenhouse Effect

Global warming started with the burning of fossil fuel on an industrial scale. Coal was used initially; it was supplemented and substantially replaced by oil while gas joined in later. The three forms of carbon together produce 6 billion tons of carbon dioxide each year. This large amount of carbon dioxide is absorbed by the forests and the seas. The tropical region countries are, however, clearing their forests for timber, are making room for range or agricultural land and are burning their wood while the energy deficient countries like Pakistan are depleting their forest resources for firewood and much less for timber. They are thus releasing more and more carbon dioxide into the atmosphere where it is accumulating at a faster rate than the absorption capacity of the environment. This shortfall has created a dirty window over the Earth. The resulting effect is similar to a greenhouse where in the visible light from the sun reaches and warms the surface but retards the infrared energy from back radiation into space. Greenhouse effect is a natural phenomenon but the amount of carbon dioxide produced during the last hundred years is so much as to increase its concentration by 25 percent on 1880 levels. It is interesting to note that ice ages during the last 160,000 years of the earth have been marked by reduced carbon dioxide level and warm interglacial periods by increase in its level.

Carbon dioxide accounts for only 60 percent of the greenhouse effect. Methane and nitrous oxides are the other gases which are produced by bacteria living in the soil under paddy cultivation, in the intestines of ruminating cattle and sheep and also by the termites. High temperature combustion results in the combination of oxygen and nitrogen to form nitrogen oxides which is the third important air pollutant from automobile engines, electricity generation and conventional explosives used in warfare. This gas was produced extensively during the Gulf War. In fact the major air pollutants viz. carbon dioxide, nitrogen oxides and sulphur dioxide were extensively produced by bombings and operations by air forces, naval fleets and ground forces and finally by the burning oil wells which were emitting 40,000 tonnes sulphur dioxide, 3000 tonnes nitrogen oxides, half a million tonnes of carbon dioxide and 50,000 tonnes of particulate matter each day, almost for a greater part of 1991.

Acid rain which was observed in Quetta during the April rains was not ordinary rain water. It was a thin translucent emulsion of oil which, though only slightly acidic, was sufficiently toxic to the vegetation. There are reports

that rain, wherever it occurred, had damaged the vegetation. The rain water, because of its oil content, was almost certainly from the gaseous fumes emitted by the burning oil at Kuwait.

Any connection between the burning of oil at Kuwait and the Bangladesh cyclone is hard to draw. However, it is pertinent to point out that the South Asian region extending from Pakistan to Bangladesh and the Indian Ocean to high Himalayas has become a stress region during recent times due to excessive deforestation. This has expanded the heat zone which lies over the desert areas of Balochistan, Sindh, Punjab and Rajputana. This constitutes the low pressure area during summer and is responsible for the moisture laden Monsoon winds to take off from the Arabian Sea and bring rains to India. The winds travel over the Bay of Bengal, take up more moisture and cause heavy precipitation in Bangladesh. They take a westerly course along the Himalayas over to Kashmir and then to travel southward over Pakistan. The lower the pressure of the heat zone or the higher its temperature, the more will be the moisture content of the Monsoon wind and the higher will be the rainfall. This suggests that the extension in the low pressure area over Pakistan could be a major contributing factor to the catastrophic rains, floods and cyclones in the Monsoon region.

The meteorological data collected for the concerned stations in the heat zone of Pakistan suggest that instead of warming in the region, there has been some cooling which is of the order of 0.2 to 0.5° during the last 30 years. This cooling effect is small but significant. It can safely be attributed to rise in particulate level obviously resulting from denudation of forests and depletion of plant cover.

This degradative process was introduced towards the end of the seventies when hundreds of thousands of Afghan refugees started migrating to and were temporarily settled in Pakistan. The already resource-poor Northern Areas of Pakistan have been impoverished further by removal of trees and vegetative cover. The burden of poverty which is at the root of environmental degradation has been thrust on Pakistan. The politics of environment has thus not caused irreversible damage in Pakistan alone, but has affected the entire South Asian region.

Ozone Layer Depletion

Ozone layer depletion is a major issue which would be discussed at the UNCED [United Nations Conference on Environmental Development] from today onwards. The ozone layer which protects the earth from the hazards of ultraviolet rays, has thinned out to the extent of 50 percent in the Antarctica and 5 to 10 per cent in the region north of 30° latitude. The chlorofluorocarbons (CFCs), invented in 1928 as the miracle chemicals which are light, inert, stable, colourless, non-inflammable, non-toxic and at the same time inexpensive, soon found extensive use in the developed countries as refrigerants,

solvents, aerosol propellants, and in fire extinguishers, cosmetics etc. Their major users are U.S.A., European Community and Japan.

The CFCs whose production touched a peak volume of 1.14 million tonnes in 1988-89 was found to be not inert and that it can react with ozone in the stratosphere. One molecule of chlorofluorocarbon containing only one chlorine atom is sufficient to react with 100,000 molecules of ozone. The damage was first noticed in 1983 but with the non-stop production of the billions of trillions of CFCs the same went up by a factor of 100,000 and now the hole in the ozone layer observed earlier has widened. It is quite apparent that the industrialized countries are the major polluters of the stratosphere and the UNCED should apply the Polluter-Pays Principle on them and ask them to pay for the damages.

Ozone layer depletion is certainly of concern to Pakistan because the area north of Quetta-Multan lies in the zones where the concentration had fallen by 4 per cent of 1970 values in 1989. We should therefore, be prepared for an increased incidence of skin cancer, cataract in the eyes, weakening of immune system, low resistance to infection and low quality and quantity of plant yield specially food grains.

Urbanization Not a Problem But a Solution: Global problems such as the above are relatively lower priority areas compared with poverty, identified as the main source of pollution at the Stockholm Conference 1972. Poverty constitutes the main reason for lack of infrastructure facilities in the rural areas of the developing countries and for their low rate of urbanization. In Pakistan it has remained almost static at 29 percent for the last ten years, as compared with 86 percent in Germany. The high rate of urbanization in Germany bears out the importance of creation of infrastructure facilities so that villages grow in size to become towns which in turn become cities. This important advantage of urbanization is not taken into account by planners in Pakistan, who still seem to think that the process has done considerable damage to the economy. In fact it should have been allowed at a faster rate instead of letting it remain at 29 per cent by boosting up the pace of provision of infrastructure facilities so that each urban settlement enjoys the same comforts as the few cities to which people migrate.

The world population has now been growing at a rate of three children per second or close to a quarter million every day. At this rate of growth the population equivalent of another China would be added by the year 2000 to the 5.3 billion as of now. Almost another China lives in the urban areas 50 percent of which lives in 323 cities of over 500,000 inhabitants each. In Pakistan there were only two cities with as much population in 1950, there are now 7. In 1950 there were only 5 cities with a population of 5 billion [as published] or over, with a combined population of 42 billion. In 1980 there were 26 such cities with a combined population of 252 million and this list included Karachi. 4 more such cities were

added to the list in 1985 and with this trend there would be 59 cities with 5 million population having a combined population of over 650 million by the end of the century and the list will include Lahore. The World Bank estimates that 800 million people live in absolute poverty. This includes the 30 million in Pakistan who either live in rural poverty or else migrate to urban areas and live in Kachi Abadis or slums and squatter settlements. This would not be the case if infrastructure facilities are provided because they would create urban centres and not cities.

Solid Waste Management: Several basic amenities are not available to rural and a sizeable segment of urban population; they include housing, piped water supply, facilities for removal of household and human wastes, farm market roads as well as health care and education services.

One of the main problems faced by the cities is collection of garbage and its disposal. Although the city authorities seem to spend substantial amounts for this purpose, the filthy heaps and the unsightly black plastic bags, hanging like bats, call for effective solution. The problem is likely to aggravate further with a doubling of urban population towards the end of the century.

Waste management from households as well as industries in general, poses a serious threat to environmental health. Rivers, open canals, holes in the ground are the usual dumping sites of the liquid and solid garbage. If waste disposal is adequately managed with sustainable development in view, quite a few items could be recycled and reused. This would not only protect the environment from further degradation but also provide raw material for manufacture of such products as water pipes, buckets, lamps, stoves, sandals, etc. A number of scavengers are in fact engaged in the cities of Pakistan in collecting waste paper, broken glass and chinaware pieces, bones, kitchen garbage etc. The collection is totally disorganized and so is its disposal in the dumps. Even if the housewife packs the kitchen garbage in plastic bags and places them in the dumps, the scavengers tears them apart to obtain materials of his liking and leaves the litter in the open dump. The municipality e.g. Karachi Municipal Corporation does not have adequate number of vehicles to carry the garbage in whatever condition, quickly and it takes more than a few days to transport and dump it somewhere. The total amount of garbage generated is estimated at over 10,000 tons each day from the households alone. The vehicles available for disposal are not able to lift one third the quantity. The garbage which is not disposed of is thus colossal in volume and hence a source of constant worry to the neighbourhood. The municipal solid waste available in Karachi transported to North Karachi and is dumped there by trucks for burning. This practice on the one hand is against the suggested theme of sustainable development and on the other hand is allowing undue wastage of organic matter. The latter could be used either for composting which is an ideal material for correcting salinity of soil or else as source of energy.

The option to compost the garbage was tried in Karachi but among other reasons the plant had to be stopped because in spite of sorting, considerable amount of rags, discarded by the poor as overused clothing, found its way in the digestion tunnel and severely retarded production.

Burning of the garbage along with plastic material as a source of energy can be a good but not acceptable solution because of the emission of dioxin which is toxic even at parts per trillion level. Landfill is now considered to be the best option for disposal even if the transportation of haulage has to be effected to long distances.

Drinking Water and Health Problems: The situation with regard to availability as well as quality of water is equally bad. At a number of places in the desert and coastal areas, the water is either very brackish or else is not available at all. Salinity intrusion has been on the increase because the river discharges have been restrained as a result of construction of dams. In the desert areas the water level has gone deep down because of the droughts which occur every 3 to 4 years. The water available in the irrigated areas is certainly available but its quality is bad due to high contamination with sewage organisms. Even water supply in the urban areas are not reliable; at least in 20 percent cases in Karachi the water, when available is contaminated at the users end. All over Pakistan the water-borne and water-related diseases account for 50 percent of total ailments, even in Karachi the statistics are equally staggering. In old Karachi the water is available mainly from hand pumps i.e. underground water. This is contaminated because the sewage line is old and defective and has through leakages, been discharging concentrated doses of faecal organism into the underground water. In the new areas also the water is contaminated because of long storage in underground tanks which are not cleaned for several months, if not years.

Safe water, the essential requirement for life is available inside homes to only 4 percent rural and 40 percent urban population in Pakistan. The result is that a host of water-borne diseases such as gastroenteritis, cholera, typhoid, hepatitis, malaria and guinea-worm infection are all common and account for 40 percent of total ailments in Pakistan. Low cost options such as Matka Technology approved by the Tamire Watan Programme are recommended for dealing with water related health problems as an interim measure, until a dependable water supply is established.

Health of the children is particularly at risk due to the poor quality of water. 50 percent of the infant mortality which stands at 10 percent is due to water borne diseases.

An Action Plan, therefore, needs to be formulated immediately so that we could effectively deal with the degradation processes. It could be based on the National Conservation Strategy [NCS] which has now been adopted by the Government. A mere adoption of the strategy is, however, no indication of the commitment by

the Government to repair the damages done to the environment. The entire process is likely to cost more than 140 billion over a period of ten years and costs are likely to multiply several times during this period. It should, therefore, not be left to the Government alone to repair the damages. Each member of the society should work for the improvement of the environment because after all we have to deliver a clean environment to our coming generation.

SAUDI ARABIA

Petroleum Minister on Saudi Arabia's Contributions to Earth Summit

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[Text] Buenos Aires, June 17, SPA—The Argentina president, Carlos Menem met here last night with the Saudi Minister of Petroleum and Mineral Resources, Hisham Nazir who is currently visiting the country. During the meeting, Nazir conveyed the greetings of the custodian of the two holy mosques, King Fahd Bin-'Abd-al-'Aziz and Crown Prince 'Abdallah Bin-'Abd-al-Aziz to President Menem and the friendly people of Argentina.

The two sides discussed matters of mutual interest and President Menem expressed thanks and appreciation to King Fahd and Crown Prince 'Abdallah for the warm reception and accommodation awarded to him during his recent visit to the Kingdom.

Later on Tuesday night, Minister Nazir conferred with the speaker of the Argentinian Senate and the vice president, Eduard Menem. The two meetings were attended by the Saudi ambassador to Argentina, Fu'ad Nazir and the advisor at the office of the Minister of Petroleum and Mineral Resources, Dr Ibrahim al-Muhanna.

Minister Nazir met last night also with the Argentina foreign minister and a number of senior officials.

Meanwhile, Minister Nazir expressed pride that custodian of the two holy mosques, King Fahd Bin-'Abd-al-'Aziz has delegated him to lead the delegation of the Kingdom to the meetings of the Earth Summit Conference which was held in Rio de Janeiro, Brazil.

Nazir made the remarks to the Saudi media delegation which covered the conference before his departure to Argentina.

The delegation was originally to be chaired by Prince Saud al-Faysal, the foreign minister, but due the unfavorable health conditions of Prince Sa'ud, custodian of the two holy mosques ordered me to lead the delegation, Nazir said.

Minister Nazir described the Summit conference as successful on all standards and said the Kingdom has

contributed a lot in the negotiations which were attended by a number of leaders and representatives of international concerned organizations.

Citing the Kingdom's participation in the international forums concerning the environment, Nazir said Prince Sultan Bin-'Abd-al-'Aziz, the second deputy premier, minister of defense, aviation and inspector general is chairing an international committee assigned to deal with environment and development affairs.

He said the delegation of the Kingdom has shown many reservations on the climate agreement discussed by the conference because that agreement involves taxes and poses a great danger on the interests of the Kingdom and other members of the Gulf Cooperation Council [GCC]. He said the Kingdom has already made clear its position on the matter during the recent joint meeting of the GCC's foreign ministers and their EC's counterparts because of the widespread uncertainty on whether the carbon dioxide was the main factor behind the pollution of the environment.

Minister Nazir made it clear that the position of the Kingdom over the agreement does not contradict with its constant and positive efforts to protect the environment. He said the Kingdom sees that the export of the nuclear energy to the developing countries would lead to far dangerous impacts and may lead to widespread disasters like those which occurred in the former USSR and the USA.

We believe that the third world countries received no specific promise to get assistance from the industrialized countries to meet the dangers to which they may expose as the result of the implementation of the nuclear programmes, he said.

He said the developing nations needs an assistance of about dirrs 125 billion annually, but, he added the sum collected so far does not exceed one tenth of the total so the Kingdom's delegation made its reservations over the agreement and these reservation will be discussed by the Government of the Kingdom of Saudi Arabia under the leadership of King Fahd to decide whether the Kingdom would joint the agreement or not.

REGIONAL AFFAIRS

German Chemical Weapons Dumped in Baltic After World War II

Cooperation Urged in Assessing Danger

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in Russian 3 Jun 92 p 5

[Article by Doctor of Chemical Sciences Kirill Babiyevskiy: "Ecology of the Planet. Chemical 'Echoes' of Wars"]

[Text] The danger of chemical weapons is underestimated by the public, largely because of their inadequate knowledge of the way this means of mass destruction acts. According to the conditions prepared by the International Convention on Chemical Disarmament and the agreements that have already been concluded, owners of stockpiles of chemical weapons must destroy them by the beginning of the next millennium. According to estimates of experts, these stockpiles (in terms of mass of toxic chemical agents) amount to more than 30,000 tons in the United States and 40,000 tons on the territory of Russia.

Chemical weapons were the first means of mass destruction used in combat operations. They proved to be highly effective as compared to conventional kinds of arms and significantly influenced the course of combat actions in World War I. This war began on 22 April 1915 by German troops in a battle near the Belgian city of Ypres with a gas attack in which chlorine was discharged from balloons. As a result of the attack on the positions of French troops, 15,000 men were affected, and 5,000 of them died within the next couple of days.

During World War II military research centers of the leading industrial countries continued to work intensively on creating both new chemical agents and technical means of applying them. In fascist Germany, in parallel with scientific research, they hastily created a powerful industrial base for producing chemical agents and various kinds of chemical munitions. As captured German archives showed, in 1943 the annual capacity of enterprises for producing chemical agents was almost 180,000 tons, that is, 1.5 times more than were obtained by all the warring countries during the years of World War I.

Still, Hitler's troops did not decide to engage in a large-scale chemical war. There is no doubt that this decision was influenced by our country's unquestionably high level of antichemical readiness and the fear of the inevitable counterattack using the same weapons by countries of the anti-Hitler coalition. The fascists knew that the Red Army had special units for chemical protection and effective technical and medical means of defense. The work of our outstanding chemist Academician N.D. Zelinskiy and his school in this area exerted a decisive influence on the development of antichemical

protection, and all veterans of the Great Patriotic War remember well our reliable army gas mask.

After defeating Germany the allies discovered there chemical arsenals of more than 250,000 tons of aerial bombs, artillery shells, mines, and hand grenades filled with mustard gas, phosgene, and arsenic-organic chemical agents and also the nerve gases tabun and sarin. There were also significant quantities of chemical agents in industrial and special containers.

The supplies of "quiet" death were sufficient to poison or incapacitate millions of people. The allies were faced with an urgent problem: what to do with these arsenals of death? After hasty consultations a decision was made to create a special organization known by the name of the "Continental Burial Committee" for overall coordination of operations for eliminating chemical munitions and resolving disputed issues. It was also decided that each of the occupation forces would destroy the stockpiles of chemical weapons discovered in their zone according to their own plans and with their own means. As the saying goes, they could suit themselves. The destruction operations were conducted in great haste under conditions of strict secrecy and, as it turns out, with serious neglect of ecological safety norms.

But one must note this unalterable fact: Most (up to 85 percent) of the chemical weapons produced in fascist Germany fell into the hands of British and American troops. To this day officials of the countries participating in the "Continental Committee" will not publish any information about what they did with the captured German weapons and their own chemical weapons produced during the years of World War II. But I do not doubt that this information exists in the special archives of each of these countries. According to information from special research done by the Stockholm International Peace Research Institute (SIPRI) published in 1971 and 1978, several thousand tons of mustard gas discovered by the Americans in their occupation zone were destroyed by burning them on the spot (it is terrifying to imagine how much of the notorious "dioxin" this formed), some of it was shipped out of German territory, and almost all the rest was sunk in the sea.

The main places in Europe selected by the allies for burying chemical munitions were the relatively shallow Baltic and North seas, and they used dozens of military and civilian ships to conduct these operations. During the period of 1945-1948 Great Britain sank barges loaded with 175,000 tons of German and also their own chemical munitions 20 miles west of the coast of Ireland. These operations continued during 1955-1957. Thus, for example, at the point of 12 degrees west and 56.30 degrees north, 250 miles west of the island of Colonsay (Inner Hebrides) they sank 25,000 tons of captured German aerial bombs containing tabun and also British bombs and shells containing mustard gas and phosgene. Moreover, according to newspapers articles of that time, in 1965 about 1,700 barrels of mustard gas were sunk in

the Bay of Biscay at a depth of about two kilometers. The Baltic Sea was not spared either. Immediately after the end of the war, on the initiative of the allied "Continental Committee," more than 200,000 tons of captured chemical weapons were shipped to the Baltic ports of Kiel, Emden, and Wolgast, and then sent to be sunk.

The Swedish journalist Fredrik Laurin quotes in his articles a discussion by a participant in one of these operations: "In November 1946 the captured passenger ship *Monte Pasqual* was loaded in Emden with 3,000 grenades, bombs, and canisters containing chemical agents. Then it was sent to Kiel where under the observation of American military engineers concrete was poured into the holds, the cargo hatches were welded shut, and demolition charges were placed inside the body of the ship. The doomed ship was then towed from Kiel to Skagen (Skagerrak strait). On 21 December the ship was cut loose and it slowly sank to the bottom."

We still do not know how many of these burial grounds there are in the Baltic Sea or precisely where they are located. The hydrogeographic services of the European countries note certain burial grounds as areas of possible navigational or ecological danger. But these designations do not give one an idea of the degree or the true nature of the threat. In the opinion of the Swedish Baltic Sea researcher Bjorn Okerlund, the largest burials of German chemical weapons from the times of World War II are in the region of the Skagerrak strait. Here 20 miles to the west of the Swedish port of Lysekil at a depth of about 200 meters are the remains of nine ships destroyed by corrosion, which contain up to 18,000 tons of mustard gas in their cemented holds. Among them are the German torpedo cutters T-38 and T-39, the mine trawlers M-16 and M-522, and also the former passenger liner *Horn*. The ships were sunk under the supervision of U.S. military servicemen. In this same zone, opposite the Norwegian port of Arendal, in 1990 a group of Norwegian submarine seamen discovered on the bottom 15 captured German ships filled with chemical weapons which were sunk on 18 May 1946.

Our newspapers have already reported on the participation of representatives of the Soviet military command in Germany in the burial of captured chemical weapons in the Baltic Sea. The *SUNDAY TIMES MAGAZINE* gives certain new details about this operation. During all the second half of 1945 and all of 1946 caravans of trucks from all corners of East Germany carried their fatally dangerous trophies to a special storage facility in the port of Wolgast (near the mouth of the Peene River). By the end of 1946 they had gathered there about 35,000 tons of chemical weapons, including: 408,565 mustard gas shells, 71,469 250-kilogram aerial bombs containing mustard gas, 17,000 bombs with adamsite and other chemical agents containing arsenic, 1,004 1.5-ton containers of mustard gas, 10,420 chemical mines, and 7,860 barrels of the toxin *Cyclone*. By May of 1947 everything was ready for the beginning of the operation for burying these weapons. Eight ships, including five captured transporters and two trawlers of the Baltic fleet,

one at a time took on the dangerous cargo in Wolgast and delivered it to the selected burial sites—to the east of Bornholm Island (near the island of Christianso) and to the south of Gotland Island. In these regions enlisted men and officers of the Soviet Army in heavy protective clothing dropped German chemical weapons to the bottom at depths of about 105 meters. The operation was completed in the last week of December 1947.

Now that the locations of certain burials of chemical weapons from the last war are being made known, should we not raise them from the sea bottom and dispose of them properly? Many think that such a decision comes too late and is therefore dangerous. Over many years the sunken ships have been severely damaged by the sea water and the cases of the chemical weapons are being damaged as well. There is no doubt that the consequences of carelessly working with these storehouses present a serious danger to people and the environment. In many places in the Baltic Sea fishermen have repeatedly sustained serious poisoning when they have found shells and containers of chemical agents in their nets.

There is no doubt that the greatest danger is presented by the remains of mustard gas munitions and containers. This chemical agent has multifaceted destructive properties related to its ability to inhibit the enzyme systems of living organisms, which leads to a halting of intercellular metabolism and necrosis of tissues. It is practically insoluble in water, and it is only covered by a gelatinous skin made of products from incomplete decomposition and polymerization, which impedes further hydrolysis of the chemical agent. For this reason mustard gas located under water can retain its toxicity for decades. Tabun and sarin—phosphororganic toxins—are slowly hydrolyzed by water. In American publications there have been reports that the intermediate products of the hydrolysis of these substances are almost as toxic as the chemical agents themselves but 100 times more resistant to further decomposition. It is easy to tell what happened to the sunken shells containing phosgene. This compound interacts with water fairly rapidly, being transformed into harmless products. The situation is more complicated with arsenic-organic chemical agents.

Unfortunately, nobody now knows exactly what will happen to the sunken chemical weapons on the bottom of the sea or what should be done with them. One thing is for certain: Further inaction is inadmissible. We must immediately combine the efforts of the military, the scientific community, and the public in order to draw up a complete list of places where chemical agents are buried and obtain reliable data on the situation in the water areas of the Baltic Sea. Then we should analyze the situation and construct models of the physical and chemical processes taking place with the chemical agents under the water. Only after this will we be able to obtain a clear picture of the real danger and develop concrete measures for preventing (or reducing) dangerous ecological consequences.

Cleanup Seeks To Avoid 'Baltic Chernobyl'

92W N0591B Moscow IZVESTIYA in Russian 4 Jun 92
Morning Edition p 7

[Article by IZVESTIYA correspondent Yevgeniy Solomchenko: "'Ekobaros'—Program for Saving the Baltic. Neutralization of Chemical Weapons Sunk in the Sea Begins"]

[Text] The first to sound the alarm were the "Greens" of St. Petersburg and the Petersburg Chekists. Both understood that if this catastrophe were to occur it could break all Chernobyl "records" both in terms of the scale of the disaster and in terms of the difficulty of the cleanup. The "Baltic Chernobyl" could strike the bell of disaster no later than 1995. In St. Petersburg they have developed the comprehensive program Ekobaros, which is intended to avert the approaching cataclysm. Will they manage to implement it?

This story begins in 1945 when the trilateral commission of victorious countries (USSR, United States, and Great Britain) adopted a decision: to conduct mass sinking of captured chemical weapons in the Baltic Sea. Thus artillery shells and immense 500-kilogram aerial bombs filled with mustard gas and lewisite, tabun and phosgene, ended up on the bottom of the Baltic—near the port of Liepaja not far from the islands of Bornholm and Christianso.

During 1945-1947 the triumvirate of allies buried an immense quantity of munitions containing chemical agents this way: about 250,000-300,000 tons. This is the "guaranteed minimum" of the deadly "filling" with which the Baltic is stuffed today. For, as experts emphasize, nobody can be sure that there was no sinking of chemical agents in subsequent years as well.

And so it turns out that 30 million people living on the shores of this bitterly cold sea go to sleep each night in the arms of a chemical superbomb. Because of corrosion in the salt sea water the metal casings of the shells, bombs, and containers of chemical agents will inevitably be destroyed. And then the killer-genie confined in them will burst out and impregnate the waters of the Baltic with death.

Strictly speaking, this disaster has already begun. In the foreign press there have been several reports of mysterious mass poisonings of fish in Poland, Denmark, and Germany. And next to the island of Bornholm eyewitnesses have observed large quantities of an unknown gas erupting from the depths of the sea.

Leading St. Petersburg specialists in the area of chemical agents—experts from the Scientific Research Institute of Chemistry, the Sanitary-Hygienic Institute, and the GIPKh Scientific Production Association—have presented a conclusion. The activity of war chemical agents when combined with sea water is very high; we must immediately eliminate these burial grounds on the bottom of the sea.

The "demilitarization" of the Baltic depths was taken on by the Okeanotekhnika Association, which has put together powerful scientific and technical potential and is supplied with modern equipment and armed with advanced—and until recently, secret—technologies. It unites 18 large military-industrial and other organizations and enterprises from a number of cities but mainly St. Petersburg.

Okeanotekhnika specialists have developed a comprehensive large-scale program for searching for, investigating, and raising the sunken ships and munitions containing toxic and explosive substances. It envisions destroying or salvaging this underwater arsenal.

On 9 December 1991 Vice President of Russia A. Rutskoy gave instructions to the government: Assist Okeanotekhnika in the practical implementation of this program. The leadership and execution of all operations for saving the Baltic Sea were made the responsibility of the Petersburg association.

With broad support from the office of the mayor of St. Petersburg and the St. Petersburg soviet (Okeanotekhnika formed the initial collective to carry out the program. As a first practical step it decided during the 1992 summer navigation period to undertake a sea expedition to determine the precise locations of the burial places, to examine them, and to determine the toxicological situation in these regions of the water area. Only after doing this kind of preliminary investigation will it be possible to move on to the next stage of the work: raising and decontaminating the munitions. Or decide not to take these steps at all. For this point of view also exists among the specialists: The shells and bombs were manufactured from excellent Krupp steel, they are reliably preserved in the soft silt, and they are practically undamaged. Therefore it would be better not to tamper with them.

But the majority of experts hold the opposite opinion: "Raise them and decontaminate them! Immediately! Preferably no later than 1995!" The final decision in this dispute will not be made until after a detailed investigation of the underwater graveyard and all-around expert evaluation. It is planned to conduct this expert evaluation this fall.

Scientific research hydrographic ships are already being outfitted and dozens of specially selected professionals are being trained—chemists and medical experts and navigators. During the course of the expedition, along with everything else, they will conduct two or three trial raisings of shells and bombs so that later they can establish under laboratory conditions how much the renowned Krupp casings have rusted and how well protected their deadly filling is.

The significance of the Ekobaros program and the responsibility for its successful implementation are so great that it has to be given international status. And its practical implementation will require extensive international participation. The organizers of the Ekobaros program and the leaders of the St. Petersburg mayor's

office and the Petersburg soviet have called upon the United States, England, and all states of the Baltic region to cooperate in this super-project.

Proposals have already been received from Germany and a number of Scandinavian countries. They have agreed to provide money and highly effective technologies and specialists. Norwegian banks are prepared to finance the participation of their firms in the forthcoming operation.

The Ekobaros program will be fairly costly: According to preliminary estimates, it will cost \$300 million. And this does not include expenditures on eliminating the chemical agents. But even from the economic standpoint it is undoubtedly justified. For if there are mass discharges of chemical agents into the Baltic, it will be necessary to spend at the very least \$20 billion on their cleanup.

Moreover, in addition to its main goal, Ekobaros is solving a number of national economic problems. It is suggested that the chemical agents and explosives that are raised should be turned into fertilizers. And the bodies of the ships, bombs, and shells will be used to produce tractors and seeders. We plan to sell the military equipment raised from the bottom of the Baltic abroad as relics of World Wars I and II. (The value of one Luftwaffe aircraft downed during the Great Patriotic War is estimated today at from 10,000 to 50,000 German marks).

Add to this the extensive foreign investments that will be made in the Russian regions adjacent to the Baltic, the creation of additional jobs for military servicemen discharged into the reserve, and the possibility of developing the latest ecological technology.

The implementation of the project will be real evidence that our country has ceased to be a monster frightening the world with its criminal lack of ecological honor and the constant threat of global disasters.

But will Russia be able to take advantage of such a unique chance? Today, alas, there are great doubts about this.

For to get such an immense project off the ground will take more than the efforts of just one city, even such a large one as St. Petersburg. It is necessary for the Russian government to give the Ekobaros project the status of a state program, provide financing for it, and involve a number of ministries and departments and the potential of the entire republic in its implementation.

Okeanotekhnika leaders sent such a petition to the government a year ago. It would seem that the draft of government instructions regarding the Ekobaros program would have been prepared and basically coordinated by the beginning of March 1992. But no decision has been made so far. A. Rutskoy considered it necessary to go back to the first deputy prime minister of Russia: "I

consider it exceptionally important to accelerate... the issuance of government instructions regarding the...Ekobaros program."

"Because of the delay we are now losing our tempo in preparing for the sea expedition," says the executive director of the Okeanotekhnika Association, Doctor of Technical Sciences O. Semenov. "Without a government decision we cannot search the secret archive documents on the burial of chemical weapons either. Therefore our ships will set sail with only approximate information about the coordinates and sizes of these burial grounds. But we cannot wait: All operations in the Baltic must be completed before 1995. Otherwise the chemical shells might begin to become unsealed on a large scale."

Ships at the Petersburg docks are now preparing for this unprecedented expedition. Russia is equipping its last caravan in order to destroy the last—underwater—theater of World War II. Let us not be too late!

Economic Problems Erode Support for Environmental Protection

92WN0617A Moscow NEZAVISIMAYA GAZETA
in Russian 16 Jun 92 p 6

[Article by Aleksandr Tsygankov under the title "Ecology": "Money To Save the Environment: Who in the CIS Will Pay It?"]

[Text] Outrageous price increases and other economic changes have so stunned our society that the wave of concern for the environment seems to have receded all by itself. Whereas in previous years the amounts of money allocated for environmental protection by the former Union and the republics was always the subject of heated discussion, this time the outright disappearance of environmental protection from the budget does not seem to concern anyone very much. Our daily bread has proven more important, and no one can say how long that state of affairs will persist.

When the former USSR drafted a long-range environmental protection program, experts estimated that a total of R150 billion [rubles] (in 1990 prices) would be required for the period up to the year 2005. Now they prefer to maintain an embarrassed silence about that section of the budget. The center has quietly abandoned regional environmental protection organs that were once under its jurisdiction, and now they have been left virtually on their own, a part of the local budget.

Following traditions of the past, today preparations have once again begun for grandiose state programs, but as in the past no one is trying to solve the fundamental problem: how to back those programs up with adequate financial and physical resources. Yet the scientific personnel of the military-industrial complex and civilian industry are willing to develop and produce new types of high-efficiency environmental protection equipment, instruments and materials. What is unclear is who is going to pay for those things.

Under an agreement signed by the CIS countries concerning interaction in the field of the environment and environmental protection, an Interstate Environmental Council is supposed to be established, and in conjunction with it an Interstate Environmental Fund to finance the most important measures of an interregional nature. For example, a total of R900 million in centralized investment funds and R1.7 billion from republic budgets was spent in 1991 toward solving the problems of the Aral Sea. Consequently the new fund should have at least R1 billion in order to have a noticeable effect on improvement of our common environmental space. If we can count only on contributions from the Commonwealth states, then under the current difficult circumstances it will scarcely be possible to raise that much money. However, if we can interest enterprises, concerns, associations, joint-stock companies and other new commercial structures by granting them certain incentives, then it would be quite possible to establish a fund that will be of genuine benefit. By establishing close business contacts with the environmental funds of the CIS member states as well as with foreign banks, a fundamentally new system for financing environmental protection measures could be created.

Joint Nuclear Conference Considers Destruction of Weaponry

LD2906211392 Moscow Russian Television Network in Russian 1900 GMT 29 Jun 92

[Report by correspondent A. Peslyak on the "Vesti" newscast]

[Text] In the environs of Moscow nuclear secrets are being revealed to us Russians. Parliamentarians of the North Atlantic Assembly and of Russia, military men and scientists from the countries of NATO, the Baltics and the CIS are discussing the problems of the dismantling and the nonproliferation of the nuclear weapons of the former USSR.

But how can the West help? Twenty-seven thousand warheads were stored in Union arsenals; 100,000 people in 10 closed towns were creating nuclear death. Now only 500 Russian experts are capable of ensuring the dismantling of 1,500-2,000 warheads per year. But that also requires enormous outlays. According to the Bush-Yeltsin agreement on radical CIS cuts, the outlays will quadruple. The fears of ecologists are also growing with half of our nuclear submarines being put out of action. It is best for everyone without missiles. This engenders the need for multilateral monitoring and management. [video shows partially submerged submarine, meeting and Peslyak interview with participant caption-identified as "M. Walters, NATO nuclear planning sector"]

[Begin Walters recording] A special group for CIS nuclear armaments has been set up in NATO. Our sounding of the alarm due to the proliferation of the atom has given way to satisfaction with a serious,

responsible approach on the part of the Commonwealth and the Russian government. [end recording]

RUSSIA

Ecology Minister Assesses Rio Earth Summit Results

92WN06364 Moscow NEZAVISIMAYA GAZETA in Russian 30 Jun 92 p 6

[Interview with V. Danilov-Danilyan, minister of ecology and natural resources of Russia, by Dmitriy Frolov; place and date not given: "The World Has Recognized the Priority of Ecological Problems: This Is Not Yet Apparent in Russia"]

[Text] The UN Environment and Development Conference in Rio de Janeiro, while undoubtedly an outstanding event, did not, nonetheless, produce any major surprises. No one was, in fact, expecting any of it. This does not mean, however, an absence of any specific expectations connected not only with purely ecological but also economic and other geopolitical interests of various states and groupings thereof. It stands to reason that Russia has such interests also. To what extent did the decisions adopted in Rio correspond to them?

"Influence in the right direction of the preparation of the final documents was our central task, which we accomplished, in my view," Viktor Danilov-Danilyan, minister of ecology and natural resources of Russia, believes. "Strictly speaking, it is a question of three documents out of the five—the so-called forest principles and the agenda of the 21st century were adopted in the form in which they had been presented. It was very important for us that states with an economy in a transitional mode, that is, the countries which constituted the former USSR and the socialist bloc, were separated into a particular group of countries with the corresponding approach to them. The reasons are obvious—as distinct from the developed countries, we are not in a position to render anyone financial assistance, including in the sphere of the ecology. What is more, we ourselves are not averse to receiving it.

This does not mean that our problems fully coincide with those of the developing countries. On the contrary, we are already beyond the period of nature-destroying development and are confronted by the task not of the building but of the reconstruction of an industry monstrous in terms of its physical volume. Furthermore, it also should be noted that we have, perhaps, the world's highest ecological efficiency of capital investments—the potential in this respect is enormous.

Seeing us as competitors to a certain extent, the developing countries tried wherever possible to block recognition of this viewpoint, but, nonetheless, the justice thereof was ultimately obvious, and the wording "countries with an economy in a transitional mode" appeared in official UN documents for the first time.

[Frolov] *In what has this fact resulted for Russia? Has it been promised any financial support for ecological programs?*

[Danilov-Danilyan] No specific promises to anyone were heard at the conference. Bush, for example, said that the United States would allocate \$150 million for reforestation predominantly in the tropical zones, but we can only guess at which countries will be receiving how much of this amount. A world conference is not by its status and purpose the kind of activity at which to whom, when, and how much are discussed, and for this reason, if we are speaking about what Russia will receive, mention needs to be made of the bilateral meetings which were held in Rio.

A decision was adopted on spending \$100 million allocated by the governments of Finland and Norway for a cleanup of the contamination of territories of their countries from the Kola Peninsula on the modernization of the Severonikel Works in Monchegorsk. This is a fine example of a sober-minded approach to a solution of one's own ecological problems by investments in the economy of other countries.

Our negotiations with Klaus Toepfer, minister for environment and reactor safety of Germany, continued. A bilateral agreement—on cooperation in the sphere of the environment—the first in the history of the new Russia and the new Germany, had been signed not long before this. In Rio we agreed on specific measures, and, in addition, we were promised assistance in the selection of partners when it comes to the question of the creation of joint ecologically significant works.

There was a meeting with Bill Reilly, director of the U.S. Environmental Protection Agency. The Americans are prepared to render us assistance in combating losses of oil and natural and casing-head gas. This is a most serious environmental task; by tackling this, we will be contributing to the protection of the ozone layer, to a reduction in carbon dioxide emissions and to resource saving.

[Frolov] *Were any environmental undertakings heard, in turn, from our side?*

[Danilov-Danilyan] We promised to reduce carbon dioxide emissions, but not immediately, but when the transition to the new stable economy has been completed. In addition, when this happens, we promised to become donors—to finance global ecological projects.

[Frolov] *What is this, a manifestation of optimism?*

[Danilov-Danilyan] No, it is an affirmation of a possible state of affairs, in respect to the onset of which we give no guarantees.

[Frolov] *Does not this mean that the world forum ended in abstract declarations and pious wishes?*

[Danilov-Danilyan] Critics of the Rio forum are having much to say about this. But no serious professional

expected that the donor countries would have been prepared in 1997 even to allocate 0.7 percent of their national product for the world's environmental needs. The main result is that practically all countries recognized the priority of environmental problems, the paths of the solution of which have been entered on the agenda of the 21st century. This cannot be said in full about Russia, unfortunately.

Supreme Soviet Approves Chernobyl, Amnesty Bills

LD2106054992 Moscow Radio Rossi Network
in Russian 1000 GMT 18 Jun 92

[Report by Nikolay Artemev]

[Text] Both chambers of the Russian Supreme Soviet are working jointly today, and this morning, after detailed debate, the deputies adopted a bill on amendments and addenda to the law of the Russian Federation on the protection of citizens subjected to the effects of radiation as a result of the disaster at the Chernobyl atomic power station. This bill was adopted on its second reading.

The law on the protection of citizens subjected to radiation at the Chernobyl atomic power station was initially adopted in May 1991, and in those conditions it played a positive role. It made it possible to somewhat improve the lives of some people, but during the implementation of the law, for reasons of both an objective and subjective nature, there were cases of inadequate execution. Moreover, during the transition to the market and liberalization of prices of goods and services, the state of affairs concerning the implementation of this law was further aggravated.

Now with the amendments to the law adopted today, it has been decided to grant compensation and other payments and benefits to those with a minimum amount of remuneration of labor. There have also been clarifications of the standards regarding the labor law and pension guarantees. Procedures with regard to providing medical and other aid to people who suffered from the disaster at the Chernobyl atomic power station have also been brought into conformity with the Russian law on medical insurance of citizens.

Also today, a resolution of the Supreme Soviet was adopted on an amnesty. The report on this question was delivered by Mikhail Mityukov, chairman of the committee for legislation. Under this resolution, amnesty applies to 20,000 persons. They will be released from their places of imprisonment. Another 40,000 people will have their sentences reduced.

The Supreme Soviet also examined the question of the election of judges of a number of kray and oblast arbitration courts and military courts.

Presidential Order on Chemical Weapon Destruction Process

PM2206114492 Moscow ROSSIYSKAYA GAZETA
in Russian 20 Jun 92 First Edition p 3

[Unattributed report under the rubric "The Government Has Resolved": "For the Destroyers of Chemical Weapons"]

[Text] By a presidential directive, priority measures have been laid down for the fulfillment of Russia's international commitments in the sphere of the destruction of chemical weapon stockpiles.

The presidential Committee for Convention Problems of Chemical and Biological Weapons is charged with the organizational responsibility. The committee is instructed within two months to draw up and, by agreement with local organs of power, submit to the government proposals for the phased creation of a system of facilities for the destruction of chemical weapon stockpiles. Here provision must be made for measures to ensure the social protection of personnel, the comprehensive development of the social infrastructure, and the improvement of material and social provision for the population.

This includes establishing privileges and advantages as regards working conditions, remuneration, and pension provision for workers engaged in the destruction of weapons. Individual houses and health camps for children are to be built in a 15-kilometer zone around the facilities. Diagnostic centers are to be set up at medical institutions serving workers at the facilities. Ecological monitoring systems and information points are to be set up in all inhabited localities in the zones. Compulsory state personal insurance and insurance of citizens' property is to be organized.

Environmental Cooperation Accord Signed With Germany

92WVN06194 Moscow IZVESTIYA in Russian
20 Jun 92 Morning Edition p 6

[Article by Yevgeniy Bovkun, correspondent of IZVESTIYA in Bonn: "Russia and Germany Have Created a Joint Ecological Bureau"]

[Text] Germany and Russia have concluded an agreement about concrete forms of cooperation in the now most important sphere of environmental protection.

Only 15 years or so have passed since the movement of Civic Initiatives, of which the party of "greens" was then formed, succeeded in seriously raising before the population and the government the problem of the protection of nature. Germany has already been able to accumulate a great deal of state experience in ecological good sense, and ecological policy occupies an important place in the programs of all parliamentary parties and at both the governmental and international level. To this German

politicians are also obligated by the European Charter on the Environment and Health, which has been adopted here, in the FRG.

An agreement on cooperation in the sphere of ecology, the FRG also had with the former Soviet Union. Now it has been concluded, as it were, all over again: Minister for Environment, Nature Conservation and Reactor Safety Klaus Toepfer and his Russian colleague V. Danilov-Danilyan affixed their signature to it. By comparison with the former, the new agreement is more oriented to practical actions. If previously scientific-technical consultations were in the main the subject of cooperation, now it is being expanded on the practical plane.

German specialists, for example, will help us in the creation of the foundations of ecological law and the development of laws on environmental protection that correspond to the European and world level. The assistance extends to the sphere of education. An intensive exchange of specialists is forthcoming, as well as construction of joint information systems and centers for the calculation of ecological loads.

A concrete project has also been named which envisages the analysis of Volga water; you see, at present eight cubic kilometers of unpurified sewage are poured into the natural reservoirs of Russia every year.

Nuclear Blasts Proposed To Destroy Toxic Waste

92WVN0613C Moscow MEGAPOLIS CONTINENT
in Russian No 21, 22 May 92 p 10

[Article by Tatyana Kovalenko, MEGAPOLIS CONTINENT columnist: "Chetek: Explosions for Sale. But at What Price?"]

[Text] A sensation has been spread by many foreign publications: The former Soviet power intends to put up for world auction "energy emitted during underground nuclear explosions. This sounds exceedingly intriguing. But what precisely is being offered for sale?"

The international joint stock company "CHETEK," connected with the former Soviet military-industrial complex and the possessor of a unique technology, asserts that this is the best means of destroying toxic waste, as well as chemical and nuclear weapons.

Founded in December 1990, "CHETEK" (which is deciphered as "CHElovek—TEkhnologiya—Kapital") [Man—Technology—Capital], is a sort of "child of a regiment" of many founders.

However, the secret parents that reared "CHETEK," as has been suggested, are mainly two: The Tel Institute of Experimental Physics (better known in our country as the center for the production of atomic weapons "Arzamas-16"), where Andrey Sakharov worked in his time, and the former union Ministry of Atomic Power and Industry (now the Ministry of Atomic Power of Russia).

The Ministry of Atomic Power has granted "CHETEK" the exclusive rights for the commercial use of nuclear explosions, and "Arzamax-16" assigned the majority of its staff members to this undertaking. As the former president of "CHETEK," Vladimir Dmitriyev, reported, the company in actual fact obtains from the "atomic scientists" of "Arzamas" the fruits of intellectual labor, exchanging them for its shareholders, and thus receives the right of the commercial use of technology.

Now "CHETEK" has opened its branches in eight cities of former republics of the Union. Until recently, the company even had its branch abroad as well—"CHETEK-Hamburg," which was happily closed after the activity of Soviet "businessmen and specialists in nuclear technology" was publicized in the newspaper BILD. However, the closing of the foreign branch did not ruin the holders of "CHETEK" shares: Now it has approximately R1 billion in annual turnover and operates a number of jet-propelled aircraft (the contribution of a Kharkov enterprise shareholder), a fleet of imposing automobiles, and country residences in suburban Moscow, which at one time belonged to the highest party elite.

They had planned to carry out the first experimental nuclear explosions in the summer of 1992 on Novaya Zemlya. However, the representatives of the company resolutely refuted this, having declared that in the conditions of the unilateral year-long moratorium on nuclear tests proclaimed by the President of Russia, it is impossible to do this. They obviously were cunning, for, connected with the Ministry of Atomic Power, they could not but know that recently Boris Yeltsin signed Decree No. 194 "On the Testing Area on Novaya Zemlya" with the stamp "Not for the Press," and in this region the accelerated laying of new galleries and the drilling of holes for the next series of nuclear explosions will begin again.

"With a single stroke," the Ministry of Economics and Finance of the Russian Federation was allotted funds for "nuclear needs." By this decree, the testing range on Novaya Zemlya was removed from the jurisdiction of the administration of Arkhangelsk Oblast and temporarily turned over for use by the Chief Command of the OVS [Department of Foreign Relations] of the CIS. The explanation for this decree is given by the following: The majority of Novaya Zemlya containers, in which for 20 years nuclear waste was stored, producing allegedly constant leakage, compel us to start thinking about their destruction.

The cheapest and safest method of eliminating highly-toxic radioactive waste, in the opinion of Vladimir Dmitriyev, who was directly engaged in "CHETEK" in a corresponding project, are underground nuclear explosions.

First of all, as Dmitriyev asserts, the physics of an underground explosion are such that it is capable of "sealing" itself (if, of course, in the geoshiny [not further

identified] there are no fissures through which the emission of radioactive gases can take place). The influence of the shock wave and high temperatures will at once under ground destroy many harmful chemical elements, and the repeated equal reflection will so thoroughly mix up the melt and disperse the radionuclides that the recreation of harmful substances will become practically impossible and their content in the atmosphere will approach the natural radiation background.

Secondly, even if the emission of gases through the microfissures will indeed occur, there will be no special danger, since the explosions will be produced at great depths and in special testing ranges.

And, finally, very likely, the most important argument in the opinion of "CHETEK." There are a number of technologies of destruction, but all of them are too expensive. One of them envisages the construction of plants (such as in Chapayevsk). But for the elimination of all wastes there need to be at least 68 of them. And for their work, as the specialists assert, it is necessary to create another nuclear power station, the harm from which will be immeasurably greater than from underground nuclear explosions.

The prospects of "CHETEK" are tempting. "Our nuclear scientists, who have proposed the realization of the technology of the simultaneous destruction of chemical weapons and highly toxic nuclear waste are ready even for joint projects with other countries—naturally, on the condition of the conclusion of corresponding intergovernmental agreements," Dmitriyev declared.

It is well known that the United States, having renounced the expansion of the program of nuclear research in the 1970's when the danger of environmental pollution arose, is now already conducting negotiations about the possible conduct of explosions. . . but on the territory of other countries.

In part this is caused by very strong opposition among American defenders of the environment and arms control experts.

William Potter, a spokesman for the Institute of International Research in Monterey, California, after visiting the headquarters of "CHETEK," wrote: "CHETEK is a characteristic example of global danger. Soviet scientists have encountered economic difficulties, and they are being subjected to the temptation to sell their knowledge to anyone who can pay foreign currency."

The study of this problem has also been taken up by Tarik Rauf, a leading staff member of the Canadian Center for Arms Control and Disarmament in Ottawa. He made public the activity of "CHETEK" and other analogous companies. As Rauf says, "every person in Moscow wants to get involved in business. These people, as a matter of fact, are not concerned with the consequences of their deals. They only want dollars."

Ray Kidder, an arms expert of the Livermore National Laboratory in California, declared that the idea of the use of nuclear explosions for the burning of toxic waste and even nuclear warheads is technically extremely attractive, but it is necessary to make certain that the explosions will not be secretly used for the further research and development of nuclear weapons designs.

There exists still another problem which our Russian government cannot pass over in silence. The newspaper *TRIBUNE* cited the statement of one of the partners of "CHETEK," Danny Wolfson. It turns out that people living abroad do not have to worry about anything, for radioactive chemical waste will be exported to the territory of the former USSR. The company of Mister Wolfson has already prepared special containers, trucks, and ships. According to his words, the cost of the work on utilization ranges from \$300 to \$1,200—the cheapest method of destroying toxic substances, it goes without saying, if one does not take into account the health of our compatriots.

The representatives of "CHETEK" reported that the project for the destruction of toxic and radioactive waste was submitted for review to the government of Russia, which this [as published]

But the point, obviously, is not even that the leakage of nuclear secrets is possible, about which Gennadiy Burbulis in his time was so worried: The firm "CHETEK" sufficiently jealously protects the unique technology belonging to it—in so doing, true, leaving the solution of the problem of public health care to others.

The director of the branch "CHETEK-Atom MAK "CHETEK," Sergey Tokmachev, asserts that the scientists will assume all responsibility if the experiment is not successful, and one of the elaborators of the technology, Aleksandr Chernyshev, guaranteeing the complete safety of the experiment, says that during the underground explosion he is ready to stand next to the surface, and after 2 years, having undressed to his trousers, go into the underground shaft.

A truly heroic intention. History already knows such cases, where, for example, doctors inoculated themselves with mortal smallpox vaccine. But it would be a good thing to also ask others whether they are in agreement with such experiments on themselves and on their descendants. It has been proved by scientists that the ecological consequences of nuclear explosions, including underground ones, have an effect even after dozens of years, and the experiments over the gene pool of the people, which underwent catastrophic degradation after Chernobyl, and the tests in Semipalatinsk and Novaya Zemlya, will lead to the degeneration of tens of thousands of people.

This is something to think about in the first place.

Lead Pollution Seen As Greatest Environmental Health Hazard

92WN0619B Moscow *NEZAVISIMAYA GAZETA* in Russian 17 Jun 92 p 6

[Article by Boris Revich: "The Heavy Burden of a Heavy Metal"]

[Text] The Chernobyl catastrophe, the Southern Urals Trail, and the dioxin danger are the basic subject of the past few years in ecological publications. But all of these years—both before the accident at the Chernobyl Atomic Power Station and before the Chelyabinsk catastrophes—there constantly existed in the world the "lead problem."

The universal pollution of the environment with lead arose in the 20th century with the use of this metal as an antiknock agent in automobile fuel. In the 1960's broad-based epidemiological and toxicological research began on the assessment of the influence of lead, which showed that this highly toxic poison is still more dangerous than had been thought. When lead accumulates in the organism of a child, there is a reduction in intellect and the psychoneurological status changes. Among adults a connection with the frequency of the spread of arteriosclerosis and other heart vessel diseases has been traced. The results of this research were so alarming that in many countries special "anti-lead" programs were created.

For our country, the pollution of the environment of cities with lead is ecological-medical problem No 1. The entry of an enormous quantity of lead in the atmosphere—up to 20,000 tons a year—continues. In contrast to many other toxic substances, lead is present everywhere, which is confirmed both by official data and our own special investigations. Lead has the ability to accumulate in an organism in the course of a long period of time. Therefore, even if its content in the environment will be lowered, for some time it will still enter the blood stream from the bone system.

Cities located in river valleys and basin between mountains suffer especially from the emission of lead with exhaust gases from automobiles. Thus, in Yalta, which is located in a mountain circle, a situation has developed that is similar to the well-known Los Angeles smog: As the result of little circulation of air even a rather small number of automobiles in a closed space led to powerful pollution. The air of the health resort is now saturated to the extreme with exhaust gases, including lead and carcinogenic benzpyrene. The impact of the latter on the health of the population is indicated by the constantly rising curve of the growth of the number of cases of cancer of the lung.

Especially dangerous is the lead pollution of the territories of children's playgrounds. There the replacement of the soil and the installation of a turf cover and the implementation of special measures are necessary.

Urban residents who plough land along the major highways also provide for their families, along with vegetables, a good measure of lead additive

The ecological and hygienic programs being developed at the present time do not encompass the "lead" problem. There is only one radical way out of the lead situation—to prohibit the use of ethyl gasoline (as they are doing in Yaroslavl) or to sharply reduce the lead content in gasoline. Until this happens, it is necessary to conduct research on the determination of lead in the organism of children living in zones of lead pollution, to pick out groups at the highest risk, and to carry out the systematic treatment of those who are suffering most. The "lead" problem, like the Chernobyl problem, must be monitored by the state

Warning Issued Over Destruction of Hydroelectric Installations

PM0907095192 Moscow ROSSIYSKAYA GAZETA
in Russian 8 Jul 92 First Edition p 2

["Own information" report: "Dams Must Be Preserved"]

[Text] In a statement distributed among the mass media, scientists and engineers from the "Gidroproekt" institute warn of the tragic consequences in the event of the destruction of the hydroelectric installations on the territory of the union and autonomous republics of the former USSR.

In their present state these installations and also the dams which form reservoirs have the necessary degree of reliability, including in regions of increased seismicity, and do not present a danger to the population. But recently these installations have increasingly frequently been coming within the sphere of political and military conflicts and are becoming a tool of blackmail by the opposing sides, the installations are being fired on, and attempts at their armed seizure are being made. The destruction of dams and the discharge of reservoirs could lead to thousands of lives lost. In addition in these zones there are many industrial and agricultural enterprises, stores of various materials and liquids, production waste, and other establishments which if destroyed would have an effect not limited to the immediate area.

Appealing to the leaders of all states and republics formed on the territory of the former USSR to prevent possible catastrophes, the authors of the statement suggest that all countries conclude a convention on the safekeeping of pressurized hydroelectric installations.

St Petersburg Ecology Atlas Due in July

92WN0613B St. Petersburg SANKT
PETERBURGSKIYE VEDOMOSTI in Russian
30 May 92 p 1

[Article by S. Vasilyeva: "Where To Breathe, and Where Not To Breathe—the Maps Will Tell You"]

[Text] The ecological map of Leningrad Oblast, the first such map to be published in the country two years ago, enjoyed great popularity. And now its creators—the Monitoring Union—finished work on a large ecological atlas of St. Petersburg.

Every map included in the atlas has its direction. They tell about the state of the atmosphere, the waters, soils, and the flora and fauna of the city. After a 22-year long interruption, the compilation of an acoustic map reflecting the influence of noises on man, a map of electromagnetic vacillations has been created for the first time. The atlas also contains information on the sickness rate by rayons.

The creators of the atlas did not gamble on narrow specialists. Both the maps and the explanatory text in accessible form provide information about the state of the house in which we live. It is planned that the atlas will go on sale by July. The delay is explained by the fact that the price of the publication has not yet been established. The creators are hoping for a certain discount, which the direction of the atlas deserves

Radioactive Waste Sites Polluting St Petersburg Region

PM2206131192 Moscow PRAVDA in Russian
16 Jun 92 p 4

[PRAVDA—RIA-NOVOSTI correspondents' report under the rubric "Briefly and Clearly"]

[Text] Peter [St. Petersburg] has started to "glow." It is polluted by radioactive waste sites; moreover, one of the most dangerous is situated next to the hard currency hotel "Pribaltiyskaya."

A certain military unit engaged in secret work involving the use of radioactive substances was long in operation in the district of Vasilyevskiy Island near Shkiperskiy Channel. The work has finished and the military has departed, burying the radioactive waste right there in the city's soil.

No less than nine extremely dangerous centers of radioactive contamination emitting beta-radiation of up to 50,000 particles per square centimeter per minute, are situated less than 300 meters from the Gulf of Finland. The former authorities concealed the fact that Vasilyevskiy Island has been made dangerous to life over an area of almost one hectare.

Military Seen Dodging Scrutiny of Novaya Zemlya Radiation Hazards

92WN0622A Moscow ROSSIYSKAYA GAZETA
in Russian 23 Jun 92 p 5

[Article by Aleksandr Yemelyanenko, chairman of the board of the "To Novaya ZEMLYA!" Ecological Safety Movement: "It Looks North, Like a Compass Needle"]

[Text] Anyone who saw, felt, and understood what happened in the atmosphere over the archipelago and deep within the earth, under its eternal frost, who guessed what forces raged there, after all that was experienced, was frightened out of his wits.

From time immemorial, courageous sailors and travelers have turned their eyes toward Novaya Zemlya. At the turn of the 20th century, the archipelago became a platform in the mastery of the Arctic, or rather, in its conquering, in man's vainglorious attempts to establish his rule over the world of white silence. These attempts ended tragically more often than not, but homo sapiens, especially homo sovieticus, could no longer be stopped by anything.

'Project 700'

The fate of many Russian islands befell Novaya Zemlya: Youthful lieutenants discovered them, and a century later generals from big politics closed them. As of 1954, the rapid construction of "Project 700," as the Northern range for testing nuclear arms was called in secret documents and documents with the "Special File" seal, began on the Arctic archipelago.

All economic activity—reindeer herding, fur trapping, and fishing—on the islands was stopped, the local soviet was abolished, and more than a hundred Novaya Zemlya families were resettled on the mainland, where for a agonizingly long time they had to adapt to a way of life, unfamiliar to the islanders.

The military began to make Novaya Zemlya habitable. Strictly speaking, the test range encompassed 90,000 square kilometers, 55,000 of which were on dry land. For comparison, the area of the entire archipelago is 82,000 square kilometers. According to the testimony of retired Lt. General G. Kudryavtsev, who in his day commanded the Northern Test Range, the first underwater nuclear explosion in the Soviet Union was conducted in Chernaya Bay at a depth of 50 meters on 25 September 1955. Two years later, on the east bank of this bay (the so-called zone "A"), the surface test of a nuclear warhead was conducted. In the same year, Chernaya Bay and the entire southwestern shore of the archipelago shuddered with the explosion of a nuclear torpedo from the submarine of Captain 1st Class G. Lazarev.

Today, at the test range Chernaya Bay is called a "sanitary zone." According to existing official reports, the radiation background there is up to 1000 microRoentgen/hour [mR/hr]. The few eyewitnesses say that for a long time the superstructures of half-sunken target ships, thrown into the shallows by the nuclear explosions, stuck up along the shore.

There is also an extensive sanitary zone at the cape of Sukhoy Nos, at the southwestern tip of the north island. There is reason to believe that serious contamination also exists in the Mityushin Bay-Krestova Bay region, where tests of powerful thermonuclear warheads were conducted in the atmosphere over a specially prepared

battlefield, including the explosion of a 58 megaton hydrogen bomb on 30 October 1961—a sad record and, alas, not the only Novaya Zemlya record of this type.

The most intensive periods of tests at Novaya Zemlya were in 1958 (26 atmospheric and underwater explosions), 1961 and 1962 (24 and 36 tests, respectively, all atmospheric). Their total TNT equivalent exceeds 90 megatons. No other nuclear test range on Earth has known such a colossal burden. For comparison, the total power of the 259 explosions, conducted in the atmosphere from 1949 to 1974 by the United States, Great Britain, and France taken together was 92 megatons. From 1964 to 1980, China conducted 22 atmospheric tests with an overall power of 12.7 megatons TNT equivalent.

According to data of USSR Goskomgidromet observation stations, after the 1961-1962 tests at the Novaya Zemlya test range, the levels of radioactive fallout in northern regions of the USSR increased by an order of 2-3 compared to 1960. For example, if we take the maximum density of radioactive fallout (by total beta activity) registered by the Goskomgidromet services at Amderma in 1962, it turns out that it exceeded present-day background values by a factor of 11,000 (!).

As is now becoming clear, nature in the Arctic belt turned out to be very sensitive to this fallout. By the late 1950s, the levels of radioactivity in the "lichen—reindeer—man" food chain in the region north of the 60th parallel already exceeded the background indicators by a factor of more than 10.

Meanwhile, to this day departmental commentaries on these comparisons are being made in soothing tones, even though it is admitted that the 1961-1962 series of powerful nuclear explosions caused the entry of the basic part of the radioactive products into the stratosphere and thence, after redistribution, to land. Surface contamination with cesium-137 and strontium-90, official science asserts, is related to global fallout from the atmospheric explosions of all countries whose test ranges are in the Northern hemisphere.

The same departmental reports characterize the radiation situation directly at Novaya Zemlya as entirely favorable: The average level of surface contamination of the island territory with cesium-137 is 0.09 curie per square kilometer, and the average power level of a dose of gamma radiation is 10 +/- 2 mR/hr (at a height of 1 meter); in regions where rocks with an elevated content of radioactive elements come up to the surface, the average dose is 16-25 mR/hr; there are local zones in Novaya Zemlya with high levels of contamination, which are strictly localized and far from places of human habitation, where the dose of gamma radiation at the present time does not exceed 1 mR/hr.

The command of the test range officially acknowledges the existence in its territory of only three sanitary zones, formed as a result of conducting the first underwater, ground, and powerful atmospheric nuclear explosions, as

well as due to one accidental emission during an underground nuclear test. The obvious incompleteness of these data is indicated by many trustworthy sources. For example, there is the report of the St. Petersburg Scientific Research Institute for Radiation Hygiene, submitted for examination to the Supreme Soviet of the Russian Federation. In particular, it states: "Several dozen (!-A.Ye.) local sectors with an elevated radiation background (up to 2 mR/hr) of a diameter of from several hundred meters to 5 kilometers were discovered during aerial gamma photography of the Southern island by USSR Mingeo [Ministry of Geology] specialists..."

The USSR Mingeo specialists had succeeded in documenting that which ecologists had guessed for a long time. However, previously they had no opportunities to verify their assumptions and guesses under field conditions: From the moment the nuclear test range at Novaya Zemlya was created, the territory of the archipelago was virtually inaccessible for monitoring by the state nature-preservation services. Even now, regardless of the 2 November 1991 order by the President of the Russian Federation, "On Urgent Measures to Ensure Radiation Safety in the Territory of the RSFSR," the Main Headquarters of the Navy, under whose auspices the test range continues to remain, is obstructing the organization of comprehensive radiological and ecological studies of Novaya Zemlya and adjoining bodies of water in the Kara and Barents seas. Meanwhile, the conduct of this work must not be delayed any longer.

Traces in the Water!

The information, popularized in the open press, about the secret sinking of radioactive wastes in open regions of the Barents Sea and in shallow bays on the Kara side of the Novaya Zemlya archipelago elicits particular alarm from specialists and society (including in the Scandinavian countries). These operations were carried out from 1961 to 1990 by technical vessels of the Murmansk Steamship Line and the Navy with obvious violations of the requirements of MAGATE and the London Convention on preventing the contamination of seas and oceans.

According to existing information, more than 11,000 containers with radioactive wastes, as well as 15 damaged reactors from nuclear submarines and the "Lenin" icebreaker—5 of the reactors with the nuclear fuel still loaded—were sunk near Novaya Zemlya.

In rapidly developing atomic power and feverishly cultivating nuclear arsenals, we gave little thought to the consequences and were not concerned about tomorrow. The means were found only to design and build a new nuclear ship, a new reactor... The accident rate grew, and with it, like a snowball, the problems of utilization and storage of radioactive wastes also grew. They saw a way out in hiding the traces in the water.

Here are just a few fragments of this gloomy chronicle, which has been restored from archive documents.

From 1967 to 1990 the auxiliary ships of the "Atomflot" sank 1,450 containers with solid radioactive wastes in the area of the Novaya Zemlya deep-water valleys. The total radioactivity, according to data of the Navy Main Administration for Use and Repair, was about 3,000 curies. Besides this, the reports do not indicate: In 1972, the barge MBSN-356250 was sunk with a nuclear reactor, removed from a damaged submarine (total radioactivity—170,000 curies); in August 1976, the PSSN-328 lighter for the transport of liquid radioactive wastes was sunk. In addition, 4,750 containers and the lighter "N. Bauman" (in September 1964), and the central compartment of the icebreaker "Lenin" with three damaged reactors and a crane assembly (October 1967) were sunk in Tsivolok Bay.

Abrosimov Bay was turned into a radioactive cemetery even earlier. In 1965-1966, the compartments of four damaged nuclear submarines were sunk here. Next door, in Stepoviy Bay, 1,850 containers and the damaged nuclear submarine V-27 were sunk at a depth of 35-50 meters.

This dark list could go on even longer. It is also known that liquid radioactive wastes were poured by Navy and "Atomflot" vessels into five regions of the Barents Sea from 1961 to 1990.

The paradoxical nature of the situation lies in the fact that the command of the test range and the 8th Main Administration of the Navy, which oversees its work, categorically refuse to comment on these facts and to bear responsibility for what happened for many years within the borders of the test range and near it. They explain this by the fact that operations with radioactive wastes were performed by a different subdivision of the Navy, the Main Administration for Use and Repair.

Meanwhile, in the territory of Arkhangelsk and Murmansk oblasts the number of nuclear power installations has exceeded 270 units. In this regard, the problem of dealing with radioactive wastes, formed in the process of use and repair and as a consequence of removing the first- and second-generation nuclear submarines from fighting status, acquires extraordinary urgency. Today already, about 20 submarines with nuclear reactors that are worn out or no longer fit for use have accumulated in the Northern Fleet.

Specialists believe that the creation of a regional radioactive waste burial site here, meeting the requirements of MAGATE, would help cardinaly to solve the problem of radioactive wastes in Russia's European North. The Murmansk Oblast administration, the command of the Northern Fleet, and the Scientific Research Institute for Industrial Technology (Moscow) have submitted a proposal to locate such a burial site on the southern island of Novaya Zemlya, in the borders of the Central Test Range of the Russian Federation. However, there is also an alternate proposal: A plan to locate the regional radioactive waste burial site on the Kola Peninsula, in the rock strata of the Dalniye Zelentsy region, has been drafted by

the St. Petersburg Scientific Research and Design Institute for Power Engineering Technology.

In order to objectively assess the merits and shortcomings of both plans, it is proposed to organize the state expert analysis of them, including the economic, ecological, social, and technological aspects, as soon as possible.

The question of transferring the Central Test Range to the auspices of the Russian Federation Ministry of Nuclear Power is becoming ever more topical. Then the Ministry of Defense would retain only the functions of guarding its borders and ensuring a regime of safety. This would help remove many extreme limitations.

To Novaya Zemlya!

A conference on the unification of anti-nuclear, ecological, and eco-cultural organizations of the northwestern oblasts of Russian into a popular movement for ecological safety, "To Novaya ZEMLYA!" was held in the fall of 1991 in Arkhangelsk. Its programmatic goal is to achieve the cessation of nuclear tests at Novaya Zemlya and throughout the world. Among its practical tasks are: the restoration of the true picture of everything that happened at Novaya Zemlya from the moment the nuclear test range was created there; the organization of a comprehensive radiological and ecological study of the archipelago and the sites where radioactive wastes were sunk; the revelation of the distant consequences of nuclear arms tests on the population's health for the purpose of medical and social rehabilitation; and conversion of the archipelago, the involvement of its natural and raw material resources in economic circulation.

We consider the thoughtfulness of evaluations and authenticity of the information being disseminated an indispensable condition of our work. In many cases, our volunteer consultants and experts have at their disposal more complete and more accurate information on the ecological problems of the region, than the state ecological monitoring services. This also relates to data on the sinking of solid and pouring of liquid radioactive wastes in the area of Novaya Zemlya, as well as in open regions of the Barents and Kara seas. At the present time, we are conducting an additional search for eyewitnesses and participants in such operations, and we are systematically organizing their recollections.

We are also open to cooperation in other areas of our activity. The dynamic appeal—To Novaya ZEMLYA [a New LAND]!—should not be interpreted only in the literal, geographic sense. We are not urging our supporters to storm the archipelago and its secret projects. To a New LAND means to a renewed, safe planet to live on, to a new world order based on good-neighbor and cooperation principles, ruling out violence and military threat as a political argument.

Commander Details Western Army Group Ecological Efforts

*LD2406171992 Moscow ITAR-TASS in English
1618 GMT 24 Jun 92*

[By ITAR-TASS correspondent Konstantin Savvin]

[Text] Berlin, June 24 (TASS)—The commander-in-chief of Russia's Western Army Group (WAG), Colonel General Matvey Burlakov, met Germany's Federal Minister for Environment, Nature Conservation and Reactor Safety Klaus Toefer on Tuesday in Bonn. According to a report published today by the WAG press center, Colonel General Burlakov informed Toefer of the measures undertaken in the WAG to relieve pressure on the environment and improve the ecological situation at Army garrisons and combat training facilities.

Large-scale cleaning and recultivation work on the territory allocated to the WAG are under way, carried out by six recultivation battalions, four engineer battalions of the Russian Air Force, over 800 machines and about 20,000 Army personnel. Over 45,000 hectares of land have already been cleaned and recultivated, including 48 firing ranges and 14 aerodromes, of which 5 have artificial runways.

In order to establish the extent of environmental damage done and for its elimination joint actions of German and Russian experts are needed, Burlakov emphasized. According to him, it is necessary to unify efforts of WAG subdivisions for eliminating damage with German ecological experts' work.

Military Shipyard To Build Ecology-Oriented Ships

*PM2606114392 Moscow ROSSIYSKAYA GAZETA
in Russian 26 Jun 92 First Edition p 3*

[Report by correspondent Yuriy Kukanov: "Tarantul" Changes Course"]

[Text] Only quite recently the strict censor's pencil would vigilantly strike out of newspaper articles the very name of the "Almaz" shipbuilding firm. And the "Tarantul" program under which naval patrol boats were produced here was very secret. Now, Admiral Kime, commander of the U.S. Coast Guard, is boarding a ship built on Petrovskiy Island in the mouth of the Neva. He was shown the name ship of a new project—the prototype for a future multipurpose coast guard ship. The "Almaz" specialists have fitted it with new systems making it possible to wage an effective struggle against violators of maritime borders, poachers, and polluters of the environment.

In the sea of conversion "Tarantul" is steering a course toward ecology. The firm has become a participant in the government program within whose framework it has started to build ships for monitoring the state of Russia's water environment. A small cutter, equipped with an ecological reconnaissance and monitoring complex, will

work in the waters of the Neva and Neva Bay. A 100-ton "laboratory" is designed for Lake Ladoga and the Gulf of Finland. A project is being developed for a 600-ton floating ecological laboratory which will study the sea expanses.

Next year the "Almaz" shipbuilders intend to commission Russia's first high-speed 100-seat passenger catamaran. In the long term they will replace the currently familiar hydrofoils, which have an adverse effect on the environment.

Expedition Finds Further Cracks in Hull of Komsomolets

PM0807143792 Moscow IZVESTIYA in Russian
3 Jul 92 Morning Edition p 1

[Yevgeniy Shestakov report: "Expedition to Site of Sinking of Nuclear Submarine Komsomolets Over"]

[Text] It will scarcely be possible to raise the nuclear submarine Komsomolets, which sank in 1991 in the Norwegian sea. This was the conclusion reached by an expedition organized by scientists of the Oceanology Institute and Kurchatov Institute, and also by representatives of the Navy Main Staff. During its 10 days of work the expedition discovered previously unnoticed damage and cracks in the hull of the ship.

Of course, it is still too soon to draw final conclusions, but specialists are already predicting a 90-percent chance that if the submarine were raised to the surface it would split apart and there would be an explosive discharge of radioactive substances into the water. This is almost the final blow to the plan of the Dutch specialists who were proposing to raise the Komsomolets to the surface for \$200 million, but were not guaranteeing that the operation would succeed.

"Today the radiation danger does not threaten the ecosystem around the submarine," Ruben Kosyan, director of the Oceanology Institute Southern Department, believes. "Measurements of background radiation immediately around the hatch containing the nuclear warheads showed no deviations from the norm."

Similar conclusions were reached by specialists from the Norwegian Radiation Hygiene Institute, who conducted experiments independently of our scientists.

However, it is too soon to feel reassured. According to specialists' estimates, destruction of the titanium casing of the nuclear charges will begin to occur from 1995. But whereas even a year ago it would have been necessary to construct a sarcophagus like that at Chernobyl in order to protect them, the military now have "know-how" on their side—polymers that swell in water and create an impenetrable casing immediately around the warheads.

R. Kosyan also rejected the possibility that nuclear warheads from the Komsomolets might fall into the hands of extremist organizations.

"Only five submersibles—three in the West and two in Russia—are (theoretically) capable of raising them from a depth of 1,720 meters (and only theoretically)," he said. "However, taking all the technical and natural factors into account, it is unrealistic to recover nuclear weapons from the Komsomolets."

Ecological Conditions in White, Barents Seas 'Catastrophic'

927C0410A Moscow RADIKAL in Russian No 15,
1992 p 11

[Unattributed report: "Dirt That Kills"]

[Text] An ecological catastrophe has struck in the White and Barents Seas; thousands of Greenland seals have been afflicted with malignant blood diseases. The character of the changes in the organism of the animals points to prolonged toxic and radioactive exposure.

Arkhangelsk scientists who have been engaged in the study of the causes of the mass death of starfish in the White Sea in May, 1990, have reached that conclusion. At that time the waves had washed up not only millions of invertebrates, but dozens of pinnipeds as well.

Yuriy Timoshenko, director of the Laboratory of Marine Mammals of the Northern Department of the Polar Institute of the Fishing Industry and Oceanography (PINRO), assumes that the seals were killed by the effects of the nuclear tests on Novaya Zemlya and by the transformation of the coastal waters of this archipelago into a dump of solid and liquid radioactive wastes. In addition, chemical weapons, packed with sarin, yperite, and lewisite, have been buried on the bottom of the White and Barents Seas.

In the opinion of the scientists, there can be no question of the resumption there of nuclear testing on Novaya Zemlya, or even less of the organization of industries for the liquidation of chemical weapons, as has been proposed by representatives of the military-industrial complex [VPK]. It is urgently necessary to carry out operations to detoxify the lethal burials in the depths.

Debate Over Fate of Aging Nuclear Power Stations Continues

PM0707092592 Moscow IZVESTIYA in Russian
26 Jun 92 Morning Edition p 2

["Slightly abbreviated" letter from Ye. Adamov, general designer and director of the Institute of Power Engineering: "Scientists and Users Argue about Fate of Old AES's [Nuclear Electric Power Stations]"]

[Text] An item under the heading "Academy of Sciences Recommends Closure of Majority of Russian AES's [nuclear electric power stations] was published in IZVESTIYA (No. 134). The editorial office has received a letter from Yevgeniy Adamov, general designer and

director of the Institute of Power Engineering, which we are publishing in a slightly abbreviated form.

The Academy of Sciences Presidium has not adopted such a decision—to close the majority of old AES's in Russia. Here is how this confusion could have arisen: A draft decision was prepared which envisaged a recommendation to withdraw from use first generation reactors in the space of 10 years. But the document was not even confirmed in this form.

Why? The fact of the matter is that at the end of these 10 years the useful life, for example, of the Leningrad AES's units is going to be up, and there is no dispute between the "nuclear departments" and the Academy of Sciences about the need to replace them. I will go even further: According to previous experience this amount of time was hardly enough to build a power station even when the conditions were completely favorable. But taking the present state of the economy into consideration it is necessary to recognize that there is an obvious delay in adopting decisions to replenish capacity.

The Russian Academy of Sciences Presidium has also not carried out a "careful analysis taking into account worldwide demands." The scientists displayed wisdom in turning down proposals—heard at a follow-up session—to adopt a "political decision," addressing the technical aspects of the question to the specialists. I would repeat: From the scientific point of view there are no fundamentally different problems connected with taking power stations in Russia and abroad out of service. The problems of outmoded AES's are the same everywhere.

As for these actual "political decisions," the initiative for them does not lie with the Academy of Sciences but with a number of foreign politicians who are playing a primitive kind of "double game": There has already been a series of statements in the press about the dangerous state of our nuclear power stations, demands for their closure, and proposals that they be built by Western firms. The aims are clear: to not only remove a competitor, but first and foremost to "capture" the former USSR's immense energy market. The first step in this strategy is to put pressure on the Russian president in Munich at the G-7 meeting. I think that the price of such a "political decision" is not without interest, either: \$80 billion in direct losses...

Reply from editorial office: There is "no smoke without fire." Behind these few lines of denial, you can see one genuinely immense and as yet unsolved problem. The matter in question is the lack of a well-structured plan for the existence and development of nuclear power engineering in Russia. Alas, everything is complicated by the economy's collapse on the one hand, and the post-Chernobyl syndrome on the other. It is clear that without nuclear power our industry will finally collapse. But one other thing is also clear: It is necessary to make a

decision about using outmoded (therefore dangerous) units. And without putting off the matter until the next accident.

Recent events serve as a clear illustration of this contradiction. This is what an ITAR-TASS correspondent reported: "Citing inadequate nuclear power station safety guarantees, a group of Russian Academy of Sciences experts headed by Yevgeniy Velikhov, vice president of the Russian Academy of Sciences, proposes taking out of service ahead of schedule the No. 3 and No. 4 units at the Novovoronezh AES, the No. 1 and No. 2 units at the Kola, Kursk, and Leningrad AES's, and then the No. 3 and No. 4 units at the Kursk and Leningrad AES's and the No. 1, No. 2, and No. 3 units at the Smolensk AES. However, people at the Russian Federation Ministry of Atomic Power consider that these actions could inflict losses on Russia's national economy of \$642 billion. Preliminary calculations show that they should provide 1,426 trillion kilowatt-hours before the end of their planned lifetime.

"Therefore, people at the Russian Federation Ministry of Atomic Power are sure: It is not right to close the units in question ahead of schedule. And the safety systems which exist at the nuclear power stations should ensure their normal operation..."

And so the disputes continue. There is a Ministry of Atomic Power press conference set for 26 June. Its leadership is going to publish a plan of action. In any case, we cannot go forward without the outmoded AES's fate being resolved.

Greenpeace, Atomic Energy Ministry Disagree on Future of Nuclear Reactors

*LD3006125292 Moscow ITAR-TASS in English
1019 GMT 30 Jun 92*

[By ITAR-TASS correspondent Sergey Sorokin]

[Text] Moscow, June 30 (TASS)—Russian Greenpeace and officials from Atomic Energy Ministry disagreed at a press conference on Tuesday on the future of the Chernobyl-type reactors in the country.

Greenpeace experts, who had consulted Russian parliamentarians on a possibility of an immediate closure of the reactors, one of which caused the worst nuclear disaster in the world, warned the reactors are too dangerous for further exploitation.

However, Sergey Yermakov, a spokesman for the Atomic Energy Ministry, said the reactors cannot be shut down at a time [words indistinct] and should be closed by planned phases. He added the safety level of the reactors is now corresponding to the world norms.

Yermakov admitted the Greenpeace plan is reasonable, but said research of other experts, as well as the difficult financial and economic situation in the country should also be taken into account.

Inadequate Working Conditions Noted at Kalininskaya AES

LD2206014592

[Editorial Report] Moscow Russian Television Network in Russian at 1830 GMT on 16 June carries a 55-minute program entitled "AES—A Look From Inside."

The program begins with an anonymous former employee describing his work at the Kalininskaya AES [nuclear electric power plant]. He makes the point that to this day workers' pay is based on the amount of electric power that is generated, but a station like that one cannot work to capacity without endangering safety. Overhaul work leaves a lot to be desired, he adds, and has to be completed in too short of time. By the end of last November, the station generated 11,039,000,000 (not further specified), well above plan, he notes.

The former employee says this haste is detrimental to safety. For instance, between 29 January and 7 February, the reactor water was dirty and the reactor had to be stopped to remedy this situation. The blueprints are printed on poor quality paper, spare parts badly need replacing, protective clothing is in a bad state of disrepair, and safety rules are sometimes ignored—protective face masks are not worn where they should be worn, for instance.

The director of the station, in a TV interview recorded last December, complains of the woefully inadequate working conditions at the station.

In March the media reported the Balakovo AES fire, the narrator notes, but they failed to tell us how much worse it could have been. It is essential to change attitudes toward nuclear power engineering: wages must not be paid according to output; safety must be paramount. In developed countries, pay does not depend on productivity at nuclear power stations—safety is the primary issue. There is no time to lose, the narrator continues, otherwise every nuclear power station will bring the apocalypse a little closer.

The program ends with a caption stating that Yuriy Mirkin was the writer, cameraman, and director of the program, and that he is donating his fee from the program to the Scientific Research Institute of Paediatric Oncology.

Krasnoyarsk-26 Plutonium Reactor Shut Down

PM0607141992 Moscow IZVESTIYA in Russian
1 Jul 92 Morning Edition p 2

[Aleksey Tarasov report: "In Secret Caverns of Krasnoyarsk-26 Reactor Which Produced Weapons-Grade Plutonium Has Been Shut Down"]

[Text] A historic event took place on the morning of 30 June in the closed Siberian city of Krasnoyarsk-26. At the Mining and Chemical Combine here, deep below ground, the AD Reactor, which since 1958 has been

producing weapons-grade plutonium—the material used to fill nuclear weapons—was halted.

The board of Russia's State Committee for the Supervision of Nuclear and Radiation Safety has resolved to halt not only the AD reactor but also—as early as September—its counterpart, the ADE-1 reactor, which serves the very same purpose. This pace does not suit the mining and chemical plant leadership. The nuclear scientists were hoping for a gap of 1-1.5 years between the closure of the reactors—this, in their opinion, would allow them to reduce the combine's losses, avoid social upheaval, and gradually find employment for all the workers. Let me remind you that we are talking about an 11,000-strong collective.

There is no doubt that the mining and chemical combine is precisely the kind of "defense sector" unit which should be among the first to halt its current activity, and it is here that our modern ideals should be demonstrated to the world. It would be senseless to go on producing huge quantities of plutonium for a further year. Likewise, it would be senseless to continue pumping a hot radionuclide-contaminated stream into the Yenisey—the reactors being shut down are of the continuous flow-type which take water from the river to cool the reactor's core before pumping it back into the Yenisey.

While recognizing the need, however, it is also vital to acknowledge that a collective of highly skilled specialists—capable, of course, of working not only for war—could become one of the first sacrifices to the ending of the Cold War, a unique kind of peace offering. The combine has been refused financial aid from the federal budget to help with losses incurred by the change of deadlines for shutting down the reactors.

Naturally, certain conversion projects are already being implemented, but they do not resolve the problems for such a monster as this. To all intents and purposes the state is forcing the Siberian weapons manufacturers to make the best of things, and to act as they think fit. Hence, their South Korean colleagues have appeared on the horizon, offering to provide storage for the spent nuclear fuel from the mining and chemical combine's installations (see IZVESTIYA Nos. 8 and 9). And there is no certainty that tomorrow will not bring an even more bizarre recipe for survival.

Today, all of this is being widely discussed by an alarmed public, although through the efforts of Krasnoyarsk's "Greens" the controversy is often reduced either to the question of whether we will be irradiated or blown up, or to thoughts on the subject of what we value most—green dollar bills, or the living greenery of the taiga. As a sign of protest against the import of Korean equipment and the mining and chemical combine's plans to finish a plant for regenerating spent nuclear fuel (RT-2), a representative of the local ecology movement committed an act of "symbolic self-immolation": He fettered himself to a bus stop opposite the city soviet building with heated chains. The guardians of the forests and rivers,

whom it would be more precise to call "ultra-Greens," informed the authorities that "they are calling on Krasnoyarsk Kray to stage a general ecological strike, switching ultimately to an indefinite strike." However, the population's reaction to the call has been extremely apathetic.

The first plant for regenerating spent nuclear fuel was constructed in the southern Urals. It services water-cooled, water-moderated VVER-440 reactors. Likewise, the RT-2 was devised to reprocess spent nuclear fuel.

I am convinced that the state should acknowledge its responsibility for the fate of specialists at the mining and chemical combine and that it should not force them to seek material support from the Koreans. It is vital to define prospects for developing the nuclear sector as a whole and to act with the combine in line with the planned strategy.

Sosnovyy Bor Nuclear Power Station Now Fully Operational

LD0407124692 Moscow ITAR-TASS in English
1230 GMT 4 Jul 92

[By ITAR-TASS correspondent Nikolay Krupenik]

[Text] St. Petersburg, July 4 (TASS)—The third reactor of the Leningrad atomic power plant reached the 700 megawatt level at 04.55 a.m. [0055 GMT] today following repairs after the March accident. The industrial current already goes to the St. Petersburg power system. According to the regulations, at this stage of raising the power generation a specified pause is to be maintained before the production level reaches its peak of 1000 megawatt, the chief duty officer informed ITAR-TASS.

The power engineer of the Sosnovyy Bor power plant reminded that the restoration of the damaged technological channel was combined with planned precautionary repair of the block. Thus the reliability of the safety and accident preventive systems will be a degree above the earlier ones from now onward. The production conditions at the atomic power house are regular. There are no spontaneous leakages.

On this week-end Petersburg anarchists continue their so called anti-nuclear action outside the power plant. As local residents regard slogans of "Makhno's Grandchildren" (a civil war anarchist hero) with a guarded curiosity, the power plant personnel in no way respond to the uninvited guests' chanting, anarchists' calls evoke only ironical smiles from some.

According to the South-West Control and Measurement Service reports, the radiation level in St. Petersburg and in the Leningrad region, as well as in the Gulf of Finland area remains within the normal limits.

Official Expresses Fear Over Dangerous Industries in Biysk

OW2506021892 Moscow Central Television First Program and Orbita Networks in Russian 1845 GMT
22 Jun 92

[Video report by S. Kuzmin; from the "Utro" program]

[Text] In the middle 1950s, giant military industrial complexes were established in Biysk. No one thought about the correctness of their location. No one considered the prevailing winds, nor the proximity of housing. The city grew, and soon residential blocks surrounded the railroad branch line, along which explosives, chemical products, and rocket fuel are transported almost daily.

Remember the catastrophe in Orlovsk, or the explosion at the Biysk oleum [sulphuric acid] plant a year and a half ago which took several lives? [video shows train movements along rail lines, proximity of buildings, then cuts to show Kuzmin interviewing an unidentified woman]

[Begin video recording] [Kuzmin] What is being transported along this road?

[Woman] They transport sulphuric acid, ammonia, and coal along this road; as far as explosives are concerned, I think what is being manufactured here at the chemical combine....

[Kuzmin interrupting] Do you know what is being manufactured there?

[Woman] Yes, of course.

[Kuzmin] The whole city must know, it is not a secret

[Woman] Of course, of course. Do you know we have bottlenecks at the nearby rail crossing, and there are collisions in which the train complements [as received] crash into one another?

[Kuzmin] I do not think there will be much left here if

[Woman] For sure!

[Kuzmin] Are you not frightened to live here?

[Woman] Very much. There are mostly pensioners living around here, and somehow that is a bad habit, or maybe we are already used to it. [end video recording] [video shows a document titled: USSR State Security Committee, Altay Kray Administration, Biysk City Department; then cuts to show Kuzmin interviewing V. Nestorov, officer of the Ministry of Security]

[Begin video recording] As a matter of fact, the Biysk City Department has been concerned with this problem since its inception. This problem became acute in 1990. We regularly pass information on these problems around the departments, namely the Head of the Biysk City Administration and the Altay Kray Administration of

the Ministry of Security. In practice, each year we send two or three analytical reports around the departments so that our information could assist the authorities to come to some decision on it.

[Kuzmin] That is, [words indistinct] absolutely refuses to adopt these decisions despite the fact the situation is known by both the President and the government.

[Nesterov] Yes, this situation is known to the Russian Government. Russian Vice President Rutskoy visited here literally two months ago, and we put this problem to him, but unfortunately the problem still remains tense and things are moving very slowly. [end video recording] [video shows a drawing displaying a bypass road]

The conclusion is clear—a bypass road is needed. Incidentally, it does exist but requires complete reconstruction.

Altay Kray Shows Effects of Semipalatinsk Nuclear Testing

LD2906195592 Moscow ITAR-TASS World Service
in Russian 0632 GMT 26 Jun 92

[By ITAR-TASS correspondent Valentin Pavlov]

[Text] Barnaul, 26 June—Immunologists from the Institute of Biophysics of the Siberian Section of the Russian Academy of Sciences have discovered indications of the effect of radiation on the inhabitants of Altay (West Siberia) living near the Semipalatinsk nuclear test site. Studies carried out in Loktevskiy, Rubtsovskiy and Uglovskiy rayons have shown that the years have not erased the consequences of the nuclear tests at Semipalatinsk, the ALTAYSKAYA PRAVDA newspaper reported today.

Mikhail Koroteyev and Konstantin Pukhov, scientists from the Institute of Biophysics, have created a unique piece of equipment controlled by a personal computer with a special program. A blood sample is taken from the patient and ninety minutes later one can see on the screen a graph of the genetics of the development of the cells. Scientists took neighboring Krasnoyarskiy region as the control sample; it has excellent geochemical environmental data.

Yana Pukhova, doctor of biology and head of the research group, said studies in the Rubtsovsk zone of Altay Kray give cause for concern. "The immune system of patients here cries out for help; anomalous phenomena have been discovered. This applies to adults who have been subjected to the influence of small doses of radiation over a long period and also to children," Pukhova noted.

After carrying out further analyses, scientists from the Institute of Biophysics will give their conclusions and recommendations which will serve as the basis for working out practical measures to help the region's population.

Japanese, Russian Scientists To Study Atmosphere in Siberia

LD0607205992 Moscow ITAR-TASS World Service
in Russian 1426 GMT 6 Jul 92

[By ITAR-TASS correspondent Vyacheslav Bantin]

[Text] Tokyo, 6 July—Starting 16 July a joint Japanese-Russian group of scientists will start a two-week study of the lower atmospheric layers in the area from Tyumen to Yakutsk, representatives of the Japanese national research center for the protection of the environment announced today. Experts will have to define, in particular, the level of the contents of methane and some other organic substances which, according to specialists, represent a potential danger to the ecology of the planet since under certain conditions they can become a reason for a sharp warming of the lower atmospheric layers.

It is assumed, that accumulation of carbon dioxide in the atmosphere is the main reason of the green effect. But methane, according to scientists, also has a "green effect" which is 10 times higher and, if this substance gets into the atmosphere, a real ecological "explosion" can take place. At the same time the Russian permafrost zone, which is one of the largest "storehouse" of methane, still remains a complete puzzle for scientists since serious research using modern equipment has never been conducted in this region.

The present exploration of the atmosphere in the Siberia will be conducted using an aircraft equipped with special scientific equipment. It is proposed also to study the density of methane in the soil in the Yakutsk area.

Mayak Chemical Combine Responsible for Lake Karachay Pollution

LD0707163592 Moscow Teleradiokompaniya
Ostankino Television First Program Network
in Russian 0800 GMT 7 Jul 92

[Report by correspondent S. Sergeyev, including recorded interview with Ye.G. Ryzhov, engineer of the Mayak chemical combine, identified by caption; place and date not given; from the "Novosti" newscast]

[Text] It is quite understandable that ecological problems cause concern. For the residents of Chelyabinsk Oblast, it is the Karachay Lake that has become highly dangerous.

[Sergeyev] For the past 40 years, the Mayak chemical combine, a major world producer of plutonium for weapons, has used the lake to dump its waste. As a result, the lake has become the most dangerous location on the entire planet of harmful long-life radionuclides. The current count is more than 120 million curie, which equals 2.5 Chernobyls. Military programs are being wound down, and efforts to destroy the dead lake have been going on for several years.

[Begin recording] [Ryzhov] The immediate ecological task is to ensure that the adjacent areas are not affected by this lake.

[Sergeyev] Where does the water go, the harmful water?

[Ryzhov] The radiation pollution in the water is approximately one thousand times less than in the sediments and silt which have accumulated here. The main task is to cover up the silt sediments which contain 95 percent of the radionuclides, by using hollow cement blocks. As for the water, some of it is trapped by this burying process and some of it evaporates.

[Sergeyev] Have you come across any problems in implementing the program of destroying the (Karachay)?

[Ryzhov] We need centralized financing here. [end recording]

[Sergeyev] It seems that the state should help these people and the Mayak combine to destroy the dangerous reservoir. [video shows the lake, truck dumping cement blocks into the lake, experts in protective suits]

WESTERN REGION

Sharp Increase in AIDS Forecast for Byelarus

LD2606220892 Moscow ITAR-TASS in English
0747 GMT 26 Jun 92

[By BELTA correspondent Lidia Peresypkina—TASS]

[Text] Minsk, June 26—Byelarusian physicians forecast a sharp increase of HIV disease rate in the current and next years due to the removal of "the iron curtain" from the CIS borders. "However, it appears that there is no reason to panic. So far, there have been only 79 HIV-positive people registered in the republic. Only two people died from the disease." Head physician of the anti-aids center Victor Glazovsky said. "There are 70,000 AIDS cases and 2 million HIV-positive people in the Western Europe. In the Eastern Europe the virus began to spread significantly later, but it may develop here on the same terrifying scale unless we raise an alarm before it's too late" Glazovsky believes.

An AIDS case when the virus was transferred by a Polish citizen has already been registered, the physician said. All Byelarusian newspapers reported about a lying-in woman in Vitebsk who got the virus from a boy-friend from the neighboring Smolensk region. Byelarus is the first CIS country to register AIDS cases among drug addicts. "We are deeply concerned with the problem of surveying drug addicts, for the disease spreads among them with a speed of lightning," Glazovsky pointed out. "However, over 800 drug addicts registered in the republic avoid medical examination," he said.

Glazovsky added that he hopes an interdepartmental aids-prevention committee and a coordination center will be created within the CIS to restore ties between

physicians that were broken when the former Soviet republics gained sovereignty.

Byelarus Thyroid Diseases Increased 22-Fold in Past Five Years

LD2806170192 Moscow ITAR-TASS in English
0912 GMT 27 Jun 92

[By BELTA correspondent Lidia Pesesypkina for TASS]

[Text] Minsk, June 27 (TASS—The incidence of oncologic diseases of the thyroid gland among children went up by 22 times in Byelarus over the past five years, head of the Byelarusian parliament Stanislav Shushkevich said at the U.N. Conference for Environment and Development in Rio de Janeiro. This information came from medics of the republic dispensary at the Research Institute of Radiology—a unique public health institution which helps diagnose the dangerous disease at the initial stage.

"We give consultations to all the people living in the contaminated areas—a total of 2,270,000. Our main task, however, is to render methodological assistance to the republic's physicians," Valeriy Rzheutsky, chief physician of the dispensary, told TASS.

The studies conducted over the past several years revealed considerable changes in the endocrine system of both adults and children, Rzheutsky said. These include the second- and third-degree growth of the thyroid gland, i.e. the growth by 50 to 60 per cent. The incidence of thyroid diseases also showed an increase, and not only in the areas under tough control. In addition, cases of thyroid cancer also became more frequent.

"We can save our gene pool only with the help of early diagnosis and the improvement of the ecological situation in the republic," Rzheutsky believes.

Byelarus Ecologists Call for 'Ecological Defense Troops'

LD3006223692 Moscow ITAR-TASS World Service
in Russian 0910 GMT 30 Jun 92

[By BELTA correspondent Aleksandr Lyushkevich for TASS]

[Text] Minsk, 30 Jun—Members of the republic socio-ecological Chernobyl Union believe that the ecological threat in Byelarus is now more real than a military one. They believe that the only way to guarantee a stable ecological balance is to set up ecological defense troops. "Today there is not a single ecological service in the republic capable of organizing a rehabilitation of polluted territories or a total inspection of ecological disaster areas," says Yuriy Voronezhnev, vice president of the Chernobyl Union. "Effective defense measures can only be implemented by professional military or militarized formations, which must be under direct

subordination to the executive power of the republic embodied in a single service of ecological safety."

According to Yuriy Voronezhstsev, ecological defense troops should be based on units from the chemical troops of the former USSR Ministry of Defense deployed on the territory of Byelarus, which have all the necessary equipment.

Environment Minister Demands Military Training Ground Closure

LD2206193392 Kiev Radio Ukraine World Service in English 0000 GMT 22 Jun 92

[Text] In the near future the Black Sea biospheric reserve will not suffer from the activities of the neighboring military training ground which is in the way of migrating birds. The minister of environment of Ukraine, Yuriy Shcherbak, sent a message to the minister of defense, Kostyantyn Morozov, with a demand to close down the training ground. The military showed understanding as to the decision to form a commission which will decide on the future of the training ground after the negotiations between Ukraine and Russia on the Black Sea naval fleet are completed.

Role in Eastern European Electricity Production Seen for Ukraine

LD0207220292 Kiev Ukrayinske Radio First Program Network in Ukrainian 1857 GMT 1 Jul 92

[Text] In our view, Ukraine can play an important role both in the production of electricity and in the distribution of it in Eastern Europe. This role can be like the one France now has in Western Europe. Therefore, we are ready to cooperate with Ukrainian specialists and are ready to help them set up competent bodies to ensure the security of nuclear power stations.

This was stated by Dominic Strauss-Kahn, France's Industry and External Trade Minister, at a news conference devoted to the results of his visit to Ukraine. He headed a government delegation which for two days studied power engineering in the republic.

Western Interest in Chernobyl Building Contract Reported

LD2606202892 Moscow ITAR-TASS in English 2005 GMT 25 Jun 92

[By UKRINFORM correspondent Aleksey Trotsenko—TASS]

[Text] Kiev, June 25 (TASS)—Much interest has been shown abroad in a competition announced by the Government of Ukraine to design a new sarcophagus for Power Unit 4 of the Chernobyl Nuclear Power Station. Many proposals have come in from leading Western institutes and firms, Vladimir Yarovinsky, member of the Ukrainian delegation and chairman of the Ukrainian

Parliament Commission on issues concerning the Chernobyl disaster, told journalists here at a news conference dealing with the results of the recent U.N. Environment and Development Conference in Rio de Janeiro. The contest will be launched in Kiev on July 8, Yavorivsky said.

Addressing journalists, Yuriy Shcherbak, Ukrainian Minister for Environmental Protection, pointed out the importance of the U.N. forum in Rio de Janeiro. He and other speakers emphasized that the U.N. conference had proclaimed the idea of ecological partnership while environmental protection has been put on the same footing with such important problems as the ensurance of military safety.

French Company Proposes To Build Cover for Chernobyl Unit

LD0207221592 Kiev Ukrayinske Radio First Program Network in Ukrainian 1855 GMT 1 Jul 92

[Excerpt] Masyk, first deputy prime minister of Ukraine, has received (Jacques Audran), general director for Eastern Europe of the French firm Bouygues. During their conversation—in which (Barekhtar), vice president of Ukraine's Academy of Sciences, and (Karasel), general director of Cover, the multidiscipline scientific and technical center, took part—they discussed the firm's proposals to create an airtight defense over the reactor at the Chernobyl nuclear power station which was destroyed by an accident in 1986.

The leaders of the firm are today researching how to develop this facility for radiation protection, the largest in the world, which has to ensure impermeability to radioactive gases and dust; and the protection of subsoil water from radioactive contamination; and in the future, the possibility of dismantling structures of the destroyed reactor and burying radioactive materials.

(Jacques Audran) reported that the French Government is ready to provide financial backing for the basic work of building a cover for the giant. [passage omitted]

CAUCASUS/CENTRAL ASIA

Azeri Scientists Develop Protective Measures for Caspian Sea

LD3006085692 Moscow ITAR-TASS in English 0612 GMT 30 Jun 92

[By AZERINFORM correspondent Natan Barskiy—TASS]

[Text] Baku, June 30 (TASS)—Azeri scientists have worked out a comprehensive programme of measures to protect settlements, industrial facilities and farms from the negative consequences caused by the sharp rise of the water level in the Caspian Sea.

Professor Abdul Kasymov, director of a biological research centre under the Azeri Academy of Sciences, said the programme was being implemented by the Innovation Centre of the Azeri Academy of Sciences which had begun research to prevent negative effects of the Caspian Sea which had risen over two metres over the past 15 years.

Kasymov believes the sea level has risen because of a global drop in temperatures of the topo-sphere caused by the age-old process of the earth cooling which will result in an annual excess of sea water up to 80,000 cubic metres.

According to some forecasts, the level of the Caspian Sea will rise by some four-five metres by the year 2020, Kasymov said.

Kasymov told the AZERINFORM news agency that fluctuations of the sea level have long affected the strategic situation in cities, fortresses and ports situated on the sea coast. There are many legends to account for the process, Kasymov said. The maps which date back to ancient times show that the level of the Baku Bay was much lower than at present. In the 6th century a fortress was built out of stones taken from the pits which have entirely disappeared under water at present.

Kasymov said it was established the fluctuations of the sea level are closely connected with the changing climatic conditions in the sea area, the amount of water brought by the rivers which flow into the sea and evaporation from the sea surface.

Kazakhstan Cabinet Acts To Implement Semipalatinsk Closure

LD2306191992 Alma-Ata Kazakh Radio Network in Russian 1400 GMT 23 Jun 92

[Text] In order to eliminate the consequences of nuclear explosions the Cabinet of Ministers has made a decision on additional measures to implement the president's decree on the closure of the Semipalatinsk nuclear test range.

It has been decided to resolve within two months questions on the declassification of materials concerning the radio-ecological and medical-biological situation on the territory of the former test range and other regions in the republic where tests were held of nuclear or thermonuclear weapons. Information will also be declassified on the consequences of the effects of the tests on people, animals, and the environment.

The following have been declared ecological disaster zones: all rayons of Semipalatinsk Oblast; the towns of Semipalatinsk and Kurchatov; Glubokovskiy, Zaysanskiy, Tavricheskiy, Tarbagatayskiy, Ulanskiy, and She-monaikhinskiy rayons and the town of Ust-Kamenogorsk in East Kazakhstan Oblast; Yegindybulakskiy and Karkaralinskiy rayons of

Karaganda Oblast; and Bayanaulskiy, Lebyazhinskiy, and Mayskiy rayons of Pavlodar Oblast.

The status of territories which have suffered and of citizens having the right to receive benefits and compensation for the damage caused to their health as a result of the tests will be determined.

It is envisaged to draw up a draft law on the social protection of those who have suffered from nuclear tests at the Semipalatinsk test range and other nuclear explosions carried out on the republic's territory.

The decision outlines a number of measures for cleaning up the negative consequences of the nuclear tests and envisages bringing in under mutually advantageous conditions investments and advanced technologies of foreign states.

The document will be published in full in the republican press.

Semipalatinsk Range To Become Kazakhstan's National Nuclear Center

LD2306130392 Moscow Radio Rossii Network in Russian 1200 GMT 23 Jun 92

[Text] The Semipalatinsk nuclear testing range has been reorganized into the national nuclear center of Kazakhstan. Its employees will be engaged in developing nuclear safety measures and technologies for burial of nuclear waste. They will also be involved in Kazakhstan's program to build a network of nuclear power stations. Three experimental nuclear reactors and equipment for work with fissile materials are now at the disposal of scientists, RIKA reports.

Kazakhstan Declares Semipalatinsk Oblast Ecological Disaster Zone

LD0607040792 Moscow Radio Rossii Network in Russian 0100 GMT 6 Jul 92

[Text] Kazakhstan's Cabinet of Ministers has declared Semipalatinsk Oblast and a number of regions in Pavlodar and Karaganda Oblasts ecological disaster zones. Agricultural operations have been banned in the danger zone. Benefits have been established for local inhabitants. They will also receive compensation. Foreign specialists have been invited to take part in eliminating the consequences of nuclear tests.

Turkmenistan Reopens Mouth of Karabogaz Gulf To Stem Rise in Caspian Sea

LD2806203692 Tehran IRNA in English 1413 GMT 27 Jun 92

[Text] Gorgan (Mazandaran), June 27, IRNA—The mouth of the Kara Bogaz Gulf in Turkmenistan's territorial waters was reopened Friday, to stem the rising tide of Caspian Sea waters on the coastal lands.

Turkmenistan President Safarmurad Niyazov inaugurated the reopening of the mouth of Kara Bogaz, which was turned into an artificial lagoon by the Soviets 12 years ago with negative impacts on the environment.

Following the independence of Turkmenistan from Soviet rule early this year and in view of the rising tide of Caspian waters, 250 experts worked over the last three months to build a bridge over the mouth of the Kara Bogaz at a cost of 35 million rubles prior to the opening of the mouth.

President Niyazov speaking at the ceremony said the reopening of the mouth would cause the Caspian Sea water to flow inside the Kara Bogaz Gulf, and therefore prevent the increase of water in the world's largest inland sea.

In addition to the negative environmental impact, the closure of the mouth caused an unprecedented rise in the Caspian water, resulting in substantial damages, Niyazov added.

Tashkent Water Supply Found To Be Contaminated

92US0570A Tashkent PRAVDA VOSTOKA in Russian
30 May 92 p 1

[UzTA report: "They Investigated...and Became Irritated"]

[Text] An investigatory survey has been conducted on the ecological situation in Tashkent. It was carried out by the Uzbekgidrogeologiya Association and by a specialized, comprehensive, joint geological-ecological expedition of the Krasnokholmskgeologiya Association.

As it was discovered, both the surface waters and the ground waters have been significantly polluted. In certain rayons of the city the ground waters are saturated with heavy metals, phenols, and petroleum products. In the industrial zones there are specific pollutants which coincide in their composition with those of the wastewaters discharged from enterprises. The status and condition of certain municipal intake and collecting facilities for Tashkent's drinking water gives cause for alarm.

The investigatory survey which was conducted here was aimed at achieving practical results. Based on its findings, a conclusion has been drawn regarding the possibility of utilizing the Southern and Northern water-collecting facilities solely under the strictest, most rigorous hydrochemical monitoring controls. The question was posed concerning the need for special hydrogeological surveys in order to discover the sources of the underground water and ways to eliminate them.

Doctor Links 'Freak' Births, Uzbek 'Secret' Training Ground

OW2306212492 Moscow INTERFAX in English
1900 GMT 23 Jun 92

[Following item transmitted via KYODO]

[Text] Strange phenomena have been noticed in northern Uzbekistan on the Ustyurt plateau (near the Aral Sea), causing deterioration in the health of local residents, according to Doctor Uktam Yesirkepov, the representative of the ecological organization Union for the Protection of the Aral and Amu-Dari.

In an interview with INTERFAX Yesirkepov said that in the Nuinak maternity ward last year only 14 of 736 women had normal births. Several births were reported of unusually large infants with high weights. Yesirkepov said every 43rd birth was a freak. Every 12th infant suffered a serious form of asphyxiation, a lack of oxygen.

The doctor said that in Uchsai two years ago most adults died of intestinal cancer. The average age of the victims was 26.5 years. Yesirkepov believes the strange phenomena are linked to the presence of a secret military training ground on the Ustyurt plateau.

He said, "We cannot believe the assertions by military experts that their operations on the plateau are harmless".

The doctor feels that the means for the medical examination of the entire population must be obtained, especially in the northern regions of Karakalpakstan, and the activities of the military must be investigated.

BALTIC STATES

Former Military Ranges in Lithuania To Be Inspected

OW2406163992 Moscow BALTEAX in English
1605 GMT 24 Jun 92

[Following item transmitted via KYODO]

[Text] The Danish government has allocated to Lithuania \$40,000 for the examination and inventory of the available natural resources in the formerly restricted areas which were used as the army military ranges. This project is coordinated by the World Wildlife Fund.

At today's press conference, the representatives of this international organization divulged that the inspections will be carried out by Lithuanian experts. Subject to their inspections will be former military testing ranges in the western and southern parts of the republic which have already been abandoned by the Russian troops.

The World Wildlife Fund, which is a nongovernment organization incepted in 1961, combines national organizations of 28 countries. The Fund monitors and provides financial support to various environmental protection projects.

Baltic Council Appeals to UN, CSCE on WWII Toxic Chemicals

*LD2706085192 Vilnius Radio Vilnius Network
in Lithuanian 1800 GMT 26 Jun 92*

[Text] The Soviet Union dumped hundreds-of-thousands of tons of toxic war materials into the Baltic Sea at the end of World War II, reads a Baltic Council appeal to the heads of the Baltic Sea nations and governments, the CSCE conference, and the United Nations. Most of these were buried near the Latvian-Lithuanian territorial waters boundary. With the deterioration of the [word indistinct] and bomb casings, the seeping poisons threaten the lives and health of millions of people and all of the Baltic Sea's flora and fauna. The consequences of the threatening catastrophe are also

difficult to predict for the North Sea and for the states adjacent to it. To avoid an ecological catastrophe, the Baltic Council appeals to the leaders of the Baltic Sea basin countries, the CSCE conference, and the United Nations to set up a special international commission of experts, within the Council of Baltic basin countries, to investigate the aforementioned, most dangerous ecological problem. The appeal was signed by Lithuanian Supreme Council Chairman Vytautas Landsbergis, Estonian Supreme Council Chairman Arnold Ruutel, and Latvian Supreme Council Chairman Anatolijs Gorbunovs.

Baltic leaders also adopted an appeal to the leaders of the G-7 countries—Great Britain, Germany, Italy, Canada, the United States, France, and Japan—asking them to seek the withdrawal of the foreign state's Army from Lithuania, Latvia, and Estonia as soon as possible.

Baltic leaders also adopted a statement on the use of Russian military force on the territory of other states, in answer to an appeal by the Moldovan president.

FRANCE

Rhone-Poulenc Chemical Group Proposes Waste Reduction Plan

92WS0597C Paris AFP SCIENCES in French
14 May 92 p 43

[Unattributed report: "Rhone-Poulenc Presents an 'Environment Plan'"]

[Text] Paris—The French chemical group Rhone-Poulenc presented an "environment plan" on 12 May targeted at reducing all its effluents and wastes throughout the world by 50 percent by 1995 and by 65 percent by the year 2000, explained its general manager Mr. Jean-Marc Bruel. This plan also has the goal of improving safety and taking the "environmental" dimension into account in all stages of product development.

The group has implemented three indexes measuring discharges in water, air, and solid wastes from its plants throughout the world, whose evolution will be published each year. Mr. Bruel estimated the total environment budget of the group at 2 billion French francs [Fr] in 1991—including Fr1.45 billion for the plants in France—a total expected to remain about the same through 1995.

Measured against these indexes, water pollution has already been reduced by 26 percent since 1989. Air pollution has dropped 7 percent and pollution from solid wastes 19 percent since 1990, according to Rhone-Poulenc. The group also presented its progress achieved in materials oxidizable in water, reduced by 25 percent since 1984, and in atmospheric discharges of sulfur dioxide, reduced by 34 percent over the same period.

French Cars Lag Behind in Antipollution Measures

92WS0600A Paris L'USINE NOUVELLE in French
14 May 92 pp 28-29

[Article by Alain-Gabriel Verdevoye: "Eight Months Before European Standards Come Into Force: The Large Bill for Automobile Pollution Control"]

[Text] Renault and Peugeot lag behind their European competitors. And the application of antipollution standards is expensive, for them and for equipment manufacturers.

The automobile industry is preparing for action. The countdown has started. A gnawing anxiety has seized the production and marketing departments of French car and equipment manufacturers. Only eight months remain before the European antipollution standards for gasoline-powered vehicles come into force. On 1 January 1993, all cars sold in the EEC will have to be equipped with catalytic converters and electronic fuel injection systems.

To meet the challenge, Renault and Peugeot must recon-vert one-half of their production. That is right near impossible! In fact, their German competitors already have a full length lead. Under the pressure of German tax incentives, Opel and Volkswagen are now shipping only "antipollution" vehicles on their domestic market. And they are beginning to do the same in France. Since last March, all Opel cars sold in France meet the forthcoming pollution-control regulations. The same will be true of Volkswagen by next July. Both manufacturers, as well as BMW and Mercedes-Benz have now nearly completed their production and marketing mutations.

French manufacturers are far from it. For production and marketing reasons, they reserve their antipollution models for export (Germany, Swiss, Sweden, etc.). The cars they sell in France are practically all "dirty." Renault intensifies its efforts. All version of the Safrane, its new high-end car, are already equipped with fuel injection and catalytic converters. And 50 percent of the recently redesigned R19 are now "clean."

Additional Cost: 6,000 Francs

But it is only a tentative start. Peugeot and Renault know that they cannot pass along to customers the full additional cost of antipollution devices, estimated at Fr6,000 per vehicle. "In a first stage, that will cost us money," people at Renault point out. Therefore, why would French manufacturers lose money on their own market, which takes up 45 percent of their production, before the legislation comes into force?

The trouble is that French manufacturers have postponed their conversion for so long that they now must do it in a hurry. With a triple handicap. Neither Peugeot nor Renault benefits from the experience that German companies have accumulated over large series. They have not yet achieved the required economies of scale. They will have to take up the excess cost all at once, whereas Volkswagen staggered them over several years.

Anyhow, a large part of the automobile industry had to mobilize itself quickly in order to meet the new ecological standards. Equipment manufacturers were among the first. Thus, the German company Bosch invested Fr450 million at its Onet-le-Chateau factory, near Rodez, to supply electronic fuel injection systems, to Peugeot and Renault among others. Besides, Bosch is expected to double its sales to Peugeot in this sector. In Caen, it has also started producing electronic fuel-injection control units. That required an additional investment of Fr650 million. The Italian Magneti Marelli also expects to spend Fr700 million in France between 1990 to 1994, in particular for electronics, the prerequisite to offering the sophisticated engine fuel-supply systems made compulsory by antipollution standards. The Italian group's Argentan (Orne) carburetor plant alone will receive Fr250 million to shift progressively to the production of injection units. As for the French electronics manufacturer SAGEM [Company for General Applications of Electricity and Mechanics], it,

too, intends to join the injection fray—at considerable cost. It might start its first shipments to Peugeot already in 1992.

Catalytic converter manufacturers also have had to invest. The U.S. company Allied Signal wants to double the capacity of its Florange (Moselle) factory. This unit specializes in the impregnation of the monolithic precious-metal ceramic components that form the very core of catalytic converters. ACG (General Motors Group) has spent Fr40 million to start its catalytic converter production in Gennevilliers (Hauts-de-Seine). One of the U.S. group's goals is to supply eventually not just Opel, but also Renault, perhaps even Peugeot. For its part, ECIA, the Peugeot subsidiary, had to completely overhaul its production program, to sell two million of ad hoc exhaust lines next year. This has required industrial investments worth Fr30 million.

Redesigned Vehicles

If the forthcoming regulations of 1993 have cost equipment manufacturers a lot, car manufacturers, for their part, have had to redesign their vehicles. No less! For instance, Peugeot has spent Fr600 million per year since 1985, just for research and development. At Peugeot as well as at Renault, one-half of the engine designers are working on antipollution problems. Industrialization expenditures, too, are considerable, even though manufacturers decline to quote figures.

Yet, the European, and more particularly the French, automobile industry's troubles are not over yet. Already, new and still more severe standards are looming on the horizon. Scheduled for 1996, they might become applicable in some European countries by 1994, through tax incentives.

Needless to say, manufacturers do not mince their words in private, blaming it all on ecological escalation. In fact, to adapt to the 1996 regulations, Peugeot alone will have to spend from Fr40 million to Fr100 million for each engine type. And the company with the lion logo lists 25 different engines in its catalog!

Automotive Waste Disposal Plan Considered

92WN0634B Paris LE MONDE in French 18 Jun 92
p 26

[Article by Claude Francillon: "Individuals Will Be Allowed To Use Garage Mechanics' Trash Cans"]

[Text] *The National Council of Automotive Professions (CNPA), which represents 30,000 enterprises specialized in marketing, repair, and disposal of motor vehicles, presented a "green plan" for automobiles at its recent convention in Grenoble.*

Grenoble—Automotive professionals say their conscience is clear. "We do not feel we are guilty of anything, even if our activity contributes to a certain

degradation of the environment," says Mr. Jean Puijalon, CNPA president. For many years, members of the group have been trying to manage the waste they collect (oils, batteries, tires, scrapped vehicles). Nevertheless, a significant percentage of these worn-out products escapes the traditional disposal circuits of garage mechanics and wreckers.

It is estimated that about 2 million dead batteries each year are kept by individuals or left at illegal dump sites, even though they contain dangerous acids. Some 100,000 tons of used motor oil escapes into gutters or into the ground. It is believed that one-fourth of the 21 million tires replaced in 1990 were dumped in the countryside. Finally, wreckers can recover 75 percent of the ferrous and nonferrous automotive components from the scrapped cars turned over to them, but though 1.8 million wrecks are cannibalized each year, one out of every five eludes them.

To achieve better control over the disposal of this large amount of waste, CNPA has drawn up a "green plan" that involves, among other things, the establishment of collection centers. From now on, automotive professionals will open their trash cans and used-oil vats to private individuals. They will also sort the items turned over to them for recycling by companies that specialize in exploiting (and thus eliminating) such waste deposits.

But CNPA recognizes the limited scope of its environmental measures. Its president regrets the poor use made of old tires, only 10 percent of which are used as fuel in cement plants while 13 percent are made into retreads and 77 percent end up abandoned in dumps or burned.

In addition, CNPA would like to see automobile builders significantly reduce the volume of crushed waste (sludge, plastics, glass...) which today accounts for 25 percent of the weight of vehicles demolished by the wreckers. Experts believe that in future these useless products might represent only five percent of the weight of scrapped vehicles. Recently, French automotive builders have promised that for their future models they will issue dismantling instructions indicating the composition of the materials used. This simple measure, on the drawing board for several years now, will be a valuable tool for wreckers and scrap dealers looking for recoverable elements.

Petroleum Industry Targets Hydrocarbon Emissions

92WS0597D Paris AFP SCIENCES in French
14 May 92 p 46

[Unattributed report: "Petroleum Industry Intends To Attack Hydrocarbon Emissions"]

[Text] Paris—The petroleum industry has decided to attack hydrocarbon emissions in the atmosphere, released at the time of the loading and transport of

petroleum, according to an announcement to the press on 11 May by representatives of the French Association of Petroleum Technicians.

According to a manager of the petroleum company Total, Mr. Jean-Philippe Caruette, these emissions would represent discharges of "a little over 100,000 metric tons" of hydrocarbons into the atmosphere per year. The petroleum profession intends to reach a first level in its fight against these emissions by performing loading and unloading of fuels "in closed circuit" and by recovering gasoline vapors released to reprocess them in the depots, managers explained.

The cost of such an operation is estimated at 12.5 billion French francs [Fr] by petroleum companies: Fr4.5 billion for service station equipment, Fr1.5 billion for modification of tanker trucks, Fr5 billion to adapt the installations at depots, and Fr1.5 billion for loading facilities in refineries and gasoline vapor recovery units.

Emissions from petroleum distribution represent approximately 10 percent of the total discharge of about 3 million metric tons of hydrocarbons into the atmosphere as a result of human activities, according to the Agency for the Environment and the Control of Energy (ADEME). An ADEME spokesman specified that the other sources were the transport sector (75 percent), basically private automobiles, and industries using solvent.

According to Mr. Gilbert Portal, general secretary of Europa, a pressure group formed two years ago to defend the interests of the European petroleum industry with the EEC, the directives currently under preparation at the Commission will not set new targets in terms of emissions but will impose constraints on the technologies to be used by the profession to effectively combat this form of atmospheric pollution.

Paris Water Purification Projects Planned

92WN0634A Paris LE FIGARO in French 17 Jun 92
p 6

[Article by Henri-Paul Kern: "2015: Objective Pure Water for Ile-de-France Region"]

[Text] "Because we believe in what we are doing, all of us in the syndicate felt responsible for those tons of dead fish found in the Seine," admitted plucky Daniel Meraud, president of the Interdepartmental Purification Syndicate for the Paris Urban Center (SIAAP), presenting a new master [water] purification plan that will affect the 8,100,000 inhabitants of the central core of the Ile-de-France region. In the year 2015, SIAAP will be able to treat 3,370,000 cubic meters [m³] of water per day, whereas its present capacity is 2,450,000 m³ per day.

Mr. Meraud added, however, that it was impossible to protect against so-called "10-year" storms—like one early this month—which can dump up to 10 million m³

in a matter of hours. "You don't build 25-lane highways for just a few weekends a year," he noted.

Over the next four years, SIAAP-initiated public works are projected to cost some 9 billion French francs. These projects include the new Colombes station (240,000 m³/day), doubling of the capacity of the Valenton station (600,000 m³/day), and adaptation of the Acheres station to handle rainy weather flows (up to 2,100,000 m³/day). The new master plan also provides for linking the various sewer lines to ensure that all liquid waste is channeled to the stations. These "interconnections" should also make it possible to collect some 200,000 to 250,000 m³/day of liquid waste currently discharged back into the natural environment.

In order to cope more effectively with storms, lessen the risk of flooding, and reduce discharges into Seine-Saint-Denis and the Bievre valley in times of heavy rain, several decisions have been made. Overflow from the Pantin-La Briche sewer main will be diverted to a conduit that is to extend from the Bourget branch line to the Seine. Water will be channeled into a clean-up basin before discharge into the river. In the Bievre valley, drainage system improvements will be accompanied by the creation of new reservoirs.

These measures will be supplemented by the installation of other clean-up basins at the major storm reservoirs: Choisy-le-Roi, Charenton, Massena, Buffon, Issy-les-Moulineaux (Ile Saint-Germain), La Plaine-Saint-Denis and Epinay-sur-Seine.

GERMANY

Juelich Center Coordinates Renewable Energy R&D

92MI0484A Juelich KFA INTERN in German Mar 92
pp 21-22

[Article by B. Kuhnert (REN) and S. Ambros (ACS): "REN + ACS = RES Coordinating Office"]

[Text] The Land of North Rhine-Westphalia is streamlining and stepping up its work on "Renewable Energy Sources" and "Rational Energy Consumption." The "Rational Energy Consumption and Exploitation of Inexhaustible Energy Sources" (REN) project management team, which has been at work since November 1989, was joined by the "Solar Consortium" (AGS) office in August 1991. In November 1991, the two units were combined to form the "Rational Energy Consumption, Solar Consortium" (RES) Coordinating Office, which became a new organizational unit within the Juelich Research Center.

The special feature of the way this coordinating office functions is the close cooperation between the AGS, which is financed by the Ministry of Science and Research, and the REN management team, which reports to the Minister of Economic Affairs, Small Firms, and Technology. This link is intended to ensure

that research and development (R&D) findings are efficiently developed into marketable commodities.

AGS Office

The Solar Consortium was set up by the Ministry of Science and Research (MWF) to promote research into solar energy. Its members include research and industrial bodies and municipal authorities. So far, applications have been made for more than 50 R&D projects for a total cost of over 50 million German marks [DM].

Six Main Topics

The applications were grouped under six main topics covering the following items:

- Design, construction, and trial operation of a self-sufficient electricity generating unit with an output of approximately 24 MW/h at the KFA. Photovoltaic energy will be used to generate power, and electrolysis and fuel cells will be used to produce hydrogen, which will act as the storage medium that will decouple the power supply from consumption.
- Development, testing, and promotion of small solar systems such as solar water supply systems, photovoltaic lighting units, solar measuring stations, photovoltaic pumps, solar refrigerators, etc.
- Solar architecture for active and passive solar energy exploitation; items include research and development on passive solar components, object and technique identification, software development, and conversion support in the form of training, further education, and consultancy services.
- Building of a test facility for solar systems, development of test methods, and the testing of photovoltaic components to specification.
- A solar furnace to be set up and used in semiconductor technology, research on metallic and ceramic high-temperature materials, chemical energy storage, the photochemical production of chemicals, and solar effluent purification.
- Analysis of possibilities for the practical use of solar energy and the prospects for its development in North Rhine-Westphalia between now and the year 2020.

Early Conversion [Into Working Systems]

The office has not only taken over the technical and financial/administrative supervision of the projects, but also provides assistance with the early conversion of the new solar technologies into actual systems in close cooperation with REN, arranges seminars and training courses, and is responsible for the consortium's broad public image.

In their future work, the office's staff will be able to draw on the experience gained from heading up the Biology, Energy, and Ecology project.

REN Project

The basis for the land government's funding program on "Rational Energy Consumption and Exploitation of Inexhaustible Energy Sources - REN" is the gap between the energy potential at the disposal of the national economy and the actual use made of it, which lags far behind the opportunities.

Reducing the Energy Requirement

The Ministry of Economic Affairs, Small Firms, and Technology's REN funding program seeks to reduce the (primary) energy requirement. It involves funding for hydroelectric stations, wind farms, combined heat and power generation, the use of biomass for energy, solar power stations, and even solar and electric vehicles.

REN Supports ...

By funding research, development, and pilot projects in this field, the land hopes to stimulate new technologies and prepare the ground for their launch on the market.

The REN manager's task is to assess and support pilot projects falling within the program. Documentation and guidelines on the relevant programs may be obtained from the REN manager (Building 14.6, tel. 3580).

In 1991, the project manager's work centered on pilot projects on the following topics:

- Photovoltaics in the REN. Program One example is the funding granted to the RWE [Rhine-Westphalia Electricity Works], for its Lake Neurath plant, which has a peak capacity of 360 kW. A further 31 applications in the power range one to five-kWp have been recommended for funding.
- Federal/Land "1000 Roofs" Photovoltaic Program. This federal and land program, which gives 70 percent subsidies, granted 51 funding applications in North Rhine-Westphalia for grid-linked photovoltaic plants with a total output of over 100 kWp for one- and two-family houses in 1991.
- Solar-Powered Components. Aspects include designs for buildings that make exemplary use of new solar components, demonstrating rational and economical energy consumption.
- Use of Biomass for Energy. Funding is given to innovative systems using biomass for energy. Preference is given to projects involving power generation on a combined heat and power basis.
- Use of New Technologies for Rational Energy Consumption. This addresses designs for industry and private households that make an exemplary contribution to rational energy consumption.

[Boxed Insert] Coordinating Office for the Land of North Rhine-Westphalia—Rational Energy Use—Solar Working Party (RES)

Office

Solar Working Party (AGS)

- Photovoltaic, electrolysis fuel cell
- Development of independent medium-sized solar power systems

Building to save energy with solar power
Testing and quality control for solar components
Solar chemistry, solar materials research
NRW energy potential study

Sponsor

Rational Energy Use and Use of Inexhaustible Energy Sources (REN)

- Demonstration projects, solar powered components, use of biomass for energy, use of new technologies for rational energy use
- Photovoltaics, including Federal/Laender governments' 1000 Roofs Photovoltaic Program

University Uses Mussels To Test Water Quality

92MI0501A Bonn WISSENSCHAFT WIRTSCHAFT POLITIK in German 22 Apr 92 p 4

[Text] Zoologists at the University of Cologne have developed a biotest system in which mussels of the *Dreissena polymorpha* species (zebra mussels) detect pollutants in the waters of the Rhine. The researchers have attached small magnets to the shells of the mussels. As soon as the mussels close their shells, the magnets generate a signal via a toggle switch sealed in glass. The signal is recorded by a computer. Even the trembling of an "undecided" mussel is measured and evaluated. By monitoring many mussels simultaneously, the computer can form a picture of the state of the water.

The first mussel early warning system is already being put to the test in daily operation at the North Rhine-Westphalia Water and Waste Center's Rhine quality measuring station at Bad Honnef near Bonn, where two sets of 42 mussels are exposed to the Rhine water in two flow channels. Every second, a computer checks whether the shells are open or closed. Sudden closure of more than 30 percent of the mussels is a danger sign, and the computer sounds the alarm.

The zebra mussel is one of the more "robust" species. It has its natural habitat in many lakes and rivers with calm, dammed stretches, and they are to be found in large numbers even in the Rhine, with its water pollution and diverted sections. Professor Dietrich Neumann of the Zoology Institute at the University of Cologne regards the mussel test method as particularly meaningful, precisely because it uses a species that is at home in the habitat being monitored, and which still occurs there. The mussels' reactions are therefore indicative of living conditions in the river. By contrast, other biotests always use more sensitive organisms that are extraneous to the natural biocoenosis of the system under investigation and are often permanently damaged by the polluted water.

The zebra mussel reacts with great sensitivity to some pollutants, such as the timber and leather preservative

pentachlorophenol (PCP), or the insecticide lindane. If, however, the phytotoxin atrazine occurs in the water, the mussels do not close their shells until very high concentrations are reached. For a complete water monitoring system, therefore, the mussels would have to be used in conjunction with other biotests. Only a "test battery" of different biological early warning systems (algae, bacteria, crustaceans, etc.) would make it possible to detect the full range of toxins. An alarm would then enable the chemists to look for specific individual pollutants.

According to Professor Neumann, the future of the method, which has a good level of automation, lies in the permanent monitoring of discharge points. The early warning system could be used at the sewage works or industrial plants themselves, to draw attention to any increase in the level of pollutants discharged. The effluent would have to be diluted for test purposes to simulate the conditions encountered at the discharge point. However, the environment policy decisions needed to introduce this type of monitoring system were not yet forthcoming.

Laser Sensor Finds Oil, Chemical Discharges

92WS0577B Duesseldorf HANDELSBLATT in German 13 May 92 p B4

[Article by Christine Backhaus-Lautenschlaeger: "Laser Sensor Finds Oil and Chemicals More Reliably"]

[Text] The guardians of the law will be blowing a stronger wind in the faces of those who sin against the environment. Air patrolling of federal German waterways will be significantly improved technically and equipped with new, highly sensitive electronics for search and reporting to get on the track of pollution by oil and other toxins more quickly and to fight it more effectively.

Soon the DO-28's which have been used by the federal navy for air surveillance will be replaced on board by two machines of the DO-228 type with a new kind of sensor system. The group leader of the special federal office for "Ocean and Coastal Oil Spills" (SBO) in Cuxhaven, Ulf Bustorff, reports that one thing this involves is a laser fluorescence sensor developed at Oldenburg University.

The sensor is capable not only of recognizing oil on the water, but also of classifying the various oils in a certain bandwidth, whether they are heavy oil, gasoline oil or light crude oil. According to Bustorff, this offers "significant advantages for providing convincing evidence" against the perpetrators and makes some sampling unnecessary. The sensor can also locate and measure oil and other toxins not only on, but also under, the surface of the water at various depths according to degree of discoloration.

Bustorff states that a new generation of microwave radiometers (MWR) will also be employed. The new

MWR scanners, which will incorporate larger amounts of oil and will function at night and under adverse weather conditions, have a higher resolution than their predecessors. They provide data about the distribution of layer depth for an oil field.

All data from the total sensor range (including the lateral radar, ultraviolet and infrared data recording already provided) are finally entered in a data processing system. On-board image evaluation makes it possible for an offense against national and international environmental regulations (MARPOL agreement) to be recognized immediately in the aircraft. The aircraft data are passed on directly to the pollution-fighting ships, which are equipped with receivers. Thus their deployment can be rapidly coordinated.

Besides the aircraft, oil-pollution fighters have a fleet with a total of 22 ships at their disposal, 14 for the coastal area and eight for the high seas. SBO colleague Bernd Scheffler says that he is satisfied with the state of oil-spill fighting in the Federal Republic. But he said that it is not possible to take out every drop of oil which has flowed in. In future our eyes must increasingly be fixed on chemical transport ships. This range of materials conceals great risks for the marine environment, he said.

The special federal office, together with the special office of the coastal laender, have been responsible for fighting oil spills in the Federal Republic since 1980. Scheffler says that the partnership is increasingly using hardware and software solutions which are submitted to a constant and rigorous practical test. A unique umbrella data processing system is to be introduced which will combine the various individual data processing systems.

MBB/ERNO, a Bremen company, is working on this concept of a computer-supported system to fight spills, called "Remus." It makes fully automated information sources available for those who are fighting oil or toxin spills. With the use of networking, already existing information systems like chemical data banks or the simulation models of the Federal Office of Ocean Shipping and Hydrography will be integrated into the data collection. In case of catastrophe, "Remus" will provide both situational analysis (e.g. identification of hazardous substances, dispersal prognosis, jurisdiction) and decision-making assistance (in the advice mode), and performs record-keeping tasks.

Toefer on Environmental Policies, Rio Conference

4U2206102192 Hamburg DIE ZEIT in German
19 Jun 92 pp 25-26

[Interview with FRG Environment Minister Klaus Toefer by Fritz Vorholz and Christian Wernicke; place and date not given: "A Future Without Lies About Prosperity"]

[Text] [DIE ZEIT] *Mr. Minister, when will the Federal Government introduce a speed limit on superhighways?*

[Toefer] Undoubtedly, we increasingly need speed limits to increase road safety, to improve the traffic flow, and to reduce environmental pollution. But I will not predict for how long the German position within the EC in the question of a general speed limit can be maintained.

[DIE ZEIT] *You will probably annoy not only the Europeans in the future. At the Earth summit in Rio de Janeiro you were much praised for your promise to reduce carbon dioxide emissions, which harm the climate, at least by one-fourth by 2005. How do you intend to keep your word if there are already so many problems with the speed limit?*

[Toefer] Regarding carbon dioxide, the speed limit will not help much. We were taken seriously in Rio because we not only had an objective, but also a clear catalogue of measures. Thus, it would be fatal if the seriousness of our program were doubted only because it does not contain a speed limit.

[DIE ZEIT] *All the same, more and more experts are skeptical about whether you can keep your promise.*

[Toefer] There is an equal number of experts who do not have any doubts. The energy policy reorganization in the new laender alone will massively reduce carbon dioxide emissions. Moreover, better power plants will result in great improvements. For the only point here is whether these new power plants will really be in operation by 2005.

Actually, the open question is traffic policy—not because there are great chances for the reduction of carbon dioxide in car traffic, but because I have to achieve stabilization there at any rate. If this does not work, it will be difficult to achieve the overall objective. Therefore, I am striving for a so-called "fleet reduction regulation," that is to say: I want to limit the average gasoline consumption of all vehicle types of a producer.

[DIE ZEIT] *However, the Federal Environment Office already fears today that Transportation Minister Krause's plans will result in a 50-percent increase of carbon dioxide emissions by 2010.*

[Toefer] One has to be very careful with this prognosis. For it proceeds from today's car types and the people's attitude toward mobility. Moreover, we not only have to deal with the traffic plans for Germany, but for the whole of Europe. Thousands of kilometers of new superhighways are to be built. Therefore, we have to consolidate the Federal Railroad in the next two years, so that it can finally do what we constantly demand in Sunday speeches: entice more people and more goods to rail. I agree on this with my colleague Krause.

[DIE ZEIT] *In the new laender exactly the opposite is currently happening: Everyone is pressing to go from the rail to the road. This development, resulting from being behind can hardly be reconciled with the "persistent development" agreed upon in Rio*

[Toepfer] In the old laender two people share one car, in the new laender it is four. A process of catching up, which, however, is not a long-term prospect—this can only be our changed behavior—is taking place there.

I can definitely envisage that we will no longer travel by plane to the next summit, but will be brought together by screens. Unfortunately, U.S. President George Bush did not talk, for example, of such changes in our everyday life in Rio. His vote was simply: The reduction of environmental problems by growth. I think that this is a very simplifying statement, to put it mildly. The decisive thing is to change the people's behavior in the industrial states.

[DIE ZEIT] *In order to bring about such a turning-point, all experts are calling for higher energy prices. However, with its energy tax plans, the EC hid behind the inactivity of the United States and Japan.*

[Toepfer] This was indeed completely wrong. If it had been possible to prepare this summit better, it should have been done in this way: The exact cost of showing the solidarity for the environment and development that we needed in Rio would have been a surcharge of \$1 to \$2 per barrel of oil.

[DIE ZEIT] *How long will it take until Brussels finally takes action?*

[Toepfer] As from July we will have to discuss the proposal of the Brussels Commission under the new, British, EC presidency. Although the British have not been its most fervent advocates, I believe that we will achieve a graduated plan: Some countries will introduce the energy tax earlier than others.

[DIE ZEIT] *And Germany will be among the early starters?*

[Toepfer] I very much hope so.

[DIE ZEIT] *This would at least be a small success for the environment minister, who very frequently has problems with being the nature's lawyer in Bonn. Why do you not claim a right of veto for yourself, in order to push the Rio decisions through more quickly at home?*

[Toepfer] But I can only exercise a right of veto if I know the ecological costs of a measure beforehand. For this I need an environmental tolerance test for which we have created the legal prerequisites. It would be great if every cabinet bill soon contained the following: This has the following financial consequences and this costs so and so much of our environment capital. And the obligation to provide information creates persistent pressure.

[DIE ZEIT] *What will the ecological change in politics cost the taxpayers and consumers?*

[Toepfer] I firmly believe that this reorientation will finance itself in the long run. We do not need a course of ever higher taxes, but of prices: Ecological behavior must pay off.

[DIE ZEIT] *This hope fatally reminds us of the discussion on the costs of reunification. When will the politicians sincerely say what global unity will demand from us?*
[Toepfer] *I readily admit that I cannot yet give a comprehensive answer to this question. Global unity will again require us to change our behavior. But it will also have material effects—in trade, in the transfer of finances and technology. I do not want to assess today whether this will finally pay off because the south will stabilize economically and new markets are opened up. However, I also refuse to see this again under the aspect of sales markets. For this would result in a worldwide policy of growth, which is not possible without adequate technologies that do not pollute the environment.*

[DIE ZEIT] *Do you want to teach renunciation to the poor?*

[Toepfer] Of course not. The developing countries need growth, if only as an answer to the growth of the population. Therefore, the causes of this population explosion must be tackled—one has to accept that an increasing population is part of a vicious circle of poverty and underdevelopment.

[DIE ZEIT] *If the poor emulate the rich, ecological collapse will be certain. How do you envisage the world—let us say, one generation from now?*

[Toepfer] In 20 or 30 years we will not yet have a basically different world. But this does not mean that the world will remain as it is. In the north we will experience a crisis of the traditional concept of prosperity and we will have to admit that we are living with a lie about prosperity because we are passing the costs of this prosperity on to others, to nature, and the future. But a distinction between poor and rich will remain. At the same time, however, many developing countries will develop their own ideas of a lifestyle that is more than just a copy of the northern model. But the south will also have to catch up. Therefore, we must develop the right, ecologically tolerable technologies today. For a long time, technology in the north served to balance the shortage of labor. But now the factor that is scarce is "environment." Therefore, the use of environment must become far more expensive. Otherwise, industry will not develop the aid that we can also offer to the south.

[DIE ZEIT] *And you believe that this change will take place fast enough?*

[Toepfer] We have no other choice. I see two dangers for my children's generation: There will either be an impending reideologization with fanatic religious ideas—or we will head for a worldwide distribution struggle. Then the poor will take from us what they do not find at home. We have to deprive both dangers of their basis.

[DIE ZEIT] *And that is what the Rio conference calls the new global partnership. But it requires more than just new technology, for example, fairer commercial chances for the south, which endangers jobs in Germany.*

[Toepfer] In the past we lived at the expense of the environment and the Third World. Now these costs must become visible in a gradual structural change. This will be incredibly difficult: As long as people can fly cheaply to Mauritius, they will not go on vacation to the Upper Palatinate. We know the resistance that we encounter when we want to reduce financial, that is, obvious subsidies in European agricultural policy. Now the challenge is to cut invisible subsidies that many people do not even know of. It will be extremely difficult to push this through in a democracy.

[DIE ZEIT] *But the more democracy proves to be incapable of taking action, the louder will be the call for an ecological dictatorship to save the planet.*

[Toepfer] Dictatorships are established if majorities can no longer solve the problems and minorities are no longer prepared to accept this. This elitist attitude is really a danger today: More and more people are convinced that one must not subordinate oneself to the hedonism of the mass since we are actually already dancing on the edge of the volcano. In a democracy we have to react to this above all by providing information on the complex connections—that is, speedily. Otherwise, the necessary incisions will have to be so profound that it will be very hard to cope with the tensions democratically. Otherwise, we will play into the hands of those who, for example, react to migration waves from the south with undemocratic and inhuman answers.

[DIE ZEIT] *However, democracy is already in the red today. You yourself pointed out that the old burden of the north, that is, its ecological debts, has to be balanced against the south's financial debt burden. This was not mentioned in Rio.*

[Toepfer] We did not avoid this in the least. First of all, the north admitted in Rio that the environmental problems have mainly been caused by the industrial countries. Second, my basic idea is again reflected by the fact that we discussed the conditions for our help to a comparatively small extent. For if both sides are indebted, we cannot disparage the developing countries as beggars or spendthrifts. Of course, it is somewhat different in the case of obviously corrupt and inefficient dictatorships.

[DIE ZEIT] *The Third World owes the Federal Government about DM50 billion and the German banks about DM65 billion. What about the German remission of debts?*

[Toepfer] We acted long ago: After all, remitted debts of almost DM10 billion are no small matter. But it is a tragedy that a man like Alfred Herrhausen fell a victim to a cowardly assassination attempt. For as the spokesman of the board of directors of the biggest German bank he formulated impressive approaches to a solution. I think that it is important to achieve again a new initiative from the banks. I will tackle this. As the government, we will, at the same time, continue to release individual states from their public debts. However, this has to be carefully

examined. Otherwise, we will ruin financial morale and only reward those who have pursued a miserable economic policy.

[DIE ZEIT] *Before the Rio summit, you yourself warned against the development of a cold war between the poor and the rich after the East-West conflict. Has the Earth summit reduced this danger in any way?*

[Toepfer] Here I am very confident. Of course, the risks continue to exist. But Rio was an important step for environmental policy—this conference was a "confidence-building measure." More than ever, I have felt personally committed to this new form of global security thinking since this conference.

Environment Minister Calls for Closing CIS Nuclear Plants

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[Text] Bonn (ADN)—Federal Environment Minister Klaus Toepfer has demanded the shutdown of nuclear power stations on the territory of the former Soviet Union as quickly as possible. The nuclear reactors represent "considerable safety risks" which are much higher than allowed by western standards, Toepfer told the Berlin newspaper DER TAGESSPIEGEL (Friday edition). For this reason the safety of CIS nuclear power stations will also be a topic focused upon at the G-7 summit in Munich next week.

The task in the period up until their possible closure is to minimize the greatest risks with the help of the West, the German environment minister said. This is also in the West's own interests "for we share a common risk here, therefore we have to stand together sharing a common responsibility in order to reduce these risks."

Until the closures safety standards must be raised. However, at the moment it is not yet possible to give a precise period of time for a plan to abolish nuclear energy. The CIS Republics would be dependent on electricity production from their nuclear power stations for the provision of their energy for the foreseeable future. The uncertain political conditions add to the difficulty of moving away from nuclear energy (Toepfer said). It is also unclear to what extent the G-7 states would be involved financially in a program of moving away from nuclear energy (he said). Toepfer describes the creation of "framework conditions" for a shutdown as quickly as possible as a central task. Help in extracting energy from fossil fuels, as well as building up an effective power grid are part of this. The republics of the former Soviet Union should be connected up to the Western grid (he said).

NORWAY

Politicians, Environmentalists Debate State of Norway's Environment

92B N05724 Oslo: A-MAGASINET in Norwegian
30 May 92 pp 11-16

[Article by Ole Mathismoen: "Norway—Environmental Stay-Behind or Fast-Tracker?"]

[Text] *After several years of peace and kind words, Norwegian politicians and environmental organizations have parted ways. The environmentalists are whetting their knives while the politicians are rejecting criticism as foolishness. The world meeting in Rio de Janeiro begins on Wednesday next week. Can our politicians travel there in good conscience? Are we fast-trackers, good enough to pass, or stay-behinds?*

The environmental movement has taken to the use of strong words in recent times. The Association for the Protection of Nature [Naturvernforbundet] has time and again maintained that Norway is not the fast-tracker we claim to be, and that, based on population size, our environmental situation is somewhere in the middle of the pack among the world's 20 worst environmental nations. The Future Is in Our Hands organization maintains that our environmental efforts are the worst in the Nordic area. And Bellona, which had earlier entered into alliances both to the right and left, is more and more taking a broader stand against the elected officials. The politicians are either allowing the criticism to go unanswered or are blazing away in counterattack. Prime Minister Gro Harlem Brundtland has recently gone into a frontal assault against Norwegian environmentalists who are telling foreigners how bad things are here, at home: "They are damaging Norway's image and the faith that democracy can solve the environmental challenges," said a very irritated prime minister.

It is certainly true that Norway does not always have the best goals and is not doing as much as other countries in a number of areas. In some cases, this is directly due to an inadequate environmental policy but, by and large, it is too facile to compare our environmental goals with those of other countries. The reason is that the starting points are so different, both in terms of extent of pollution or natural destruction and in terms of how heavily nature is really under stress in the various countries. Even here within the Nordic countries, there are significant differences. It will for example give a false environmental picture to compare Norway's and Denmark's goals for reduction of nitrogen run-off from agriculture. Denmark for years has had serious problems with high nitrogen content in her groundwater and, moreover, has significantly more intensive agriculture than Norway. The nitrogen runoff is therefore higher and the country must invest enormous amounts in order to comply with the EC directive on nitrogen content of groundwater. Norway has never had this problem, and

will manage to meet the EC requirements without problems. Nevertheless, at several places here in our country nitrogen runoff from agriculture is a problem, and along parts of the coasts the discharges must be reduced significantly in order, among other things, to fulfill the North Sea Agreement [Nordsjøavtalen]. Therefore more than 200 million kroner are being used annually with farmers for technical environmental measures in order to stop discharges from silos and manure cellars.

The environmental movement has also attacked protection of the coniferous forests here in Norway. True enough, only 0.5 percent of productive coniferous forests are protected, which is significantly less than what many professionals have recommended as a minimum. In addition, however, large areas of mountain plateau and deciduous forest are protected, so that the total area is closer to 6 percent today. The figure will rise again when the new national park plan is approved in the Storting. When one judges Norway's protective environment, it is also important to look at the method of use. In Sweden and Finland, there is a tradition of enormous clear-cuts in relative flat landscapes. In Norway's hilly forest terrain, much smaller areas are usual and, besides, large areas are nearly inaccessible for effective timber processing. Besides, as opposed to many other countries, forestry in Norway has a tradition for rapid replanting following cutting. This is the reason there are significantly more large forests in Norway today than at the beginning of this century. What we have little of are old-growth forests, which many species are highly dependent upon in order to survive.

Many have also attacked Norway's goal for reduction of the greenhouse gas, carbon dioxide, and have made a comparison with Denmark and Germany, who will not only stabilize their emissions by the end of the 1990s, but actually reduce them by over 20 percent. These two countries will manage much of the job by profitable means. Germany has already reduced emissions significantly since old coal-powered power plants in the former GDR have been closed down. Denmark is getting large earnings by changing over from coal to gas at its power stations. Both countries will achieve the reductions without having to burden people with high taxes on gasoline. In order to achieve stabilization, Norway must in all likelihood introduce taxes that are higher than in all other countries in the world. Another side of the matter, however, is that we, in this country, will accomplish carbon dioxide reductions only if we are willing to commit ourselves to bioenergy, solar energy, and energy conservation. Research in and development of such alternative renewable energy sources are less than in our Nordic neighboring countries.

A specific area that can very rightly be attacked is Norway's electricity consumption per inhabitant. True enough, we get the largest part from nonpolluting water-power, but in times when all of Europe wants to purchase clean Norwegian energy, this argument is rather hollow. We thus stand decidedly at the world's top in consumption. In 1988, which is the last available comparison

year, we used 24,747 kilowatt hours per inhabitant. Canada, in second place, used 28,263 kilowatt hours and Sweden, in third place, used 17,243 kilowatt hours. Other examples are the United States with 11,776 kilowatt hours per inhabitant, China with 497, the Netherlands with 5,151, and the former West Germany with 7,070 kilowatt hours. Of course, the largest part of energy production on the continent is very polluting, but this is a poor Norwegian defense argument when one knows that energy conservation here could mean exports and reduced production by those who purchase it.

It is also fully possible, with good basis, to attack Norway's predatory wildlife management. Recently, Minister of the Environment Thorbjørn Berntsen established that the wolf is on the verge of being wiped out. We share between five and 10 animals with Sweden in the Finnskog [stretch of forest east of Glomma]. Wolves are shot in Norway almost every year.

Government spokesmen said when the report on wild animals of prey was submitted last winter that bears have declined from 250 to about 100 during the years the report has been worked on. There are about 150 Wolverines of a Norwegian-Swedish stock and somewhere between 300 and 400 lynx. As earlier mentioned, it can be dangerous to make comparisons with other countries, but it is tempting to cite the tiger's fate in India. Norway was among the countries that railed against India at the beginning of the 1970's, when the stock of tigers was reduced to 1,800 animals. India took its management responsibility seriously, and today there are 4,300 tigers in the country's 55 national parks and 247 reserves. There are also many Norwegians who are shaking their heads over how Africa is handling its elephant herds.

Anyone who has travelled around a little in the world and taken a look at environmental problems will certainly call Norway a very clean country. We have not destroyed the soil, drinking water, the air, or our coast. Compared with large areas in the former Soviet Union, we are an idyllic spot. And many of our environmental problems are ascribable just as much to pollution from other countries as to what we ourselves produce. But, all the same, there is much that is still undone in Norway. It is not necessary that we be the ones who produce the most trash per inhabitant or use the most electricity. It ought not to be necessary that 200,000 Norwegians are subjected to more noise than is good for the health and that asthma statistics rise constantly. And the politicians could do more than to prattle on about car pools. They could, for example, develop a bus and train network good enough that Kari and Ola would avoid using the car to get to work after making a delivery to kindergarten.

Norway's clearly most important contribution to the environment in recent years has consisted of the fact that, in a number of areas, we have gone out ahead of other countries. In part, we have done this in practice by introducing environmental taxes so that polluters participate in paying for the environmental costs, by giving the most development help per capita, and by our diplomats

and bureaucrats having played a very active and constructive role in diverse negotiations. Especially in debates between developing and industrial countries, the Norwegians have had credibility in both camps. And not least, the world has believed that Norway has been fantastically able, thanks to the contribution of our prime minister in connection with the Brundtland Commissions work. But Norwegian environmental organizations are doing what they can to dim this star. That the lines between the environmentalists and the politicians are being drawn more sharply can be illustrated with a commentary article by Gunnar Bolstad in the last issue of the Association for the Protection of Nature publication *NATUR OG MILJØ*. "As Gro's environmental reputation has become just as full of holes as the ozone layer, she is constantly more often being described within the international environmental movement as a dangerous politician."

Thus, whether Norwegian politicians can travel to Rio with a good or bad conscience depends upon the eye that is looking. Dag Hareide and Frederic Hauge will definitely see bad. The rest in the Storting will see good. People must judge for themselves. It may serve as an indicator however that, in the statistical overviews of the National Pollution Inspectorate (SFT), the word "reduced" is now being used far more often than the word "increased."

Environmental Situation

It is difficult to measure to what extent we are destroying nature and the environment around us. Even if an individual type of pollution is reduced by 90 percent, this does not have to mean that everything is in order. A serious environmental poison will damage the environment nevertheless. Even if large mountain plateaus are protected, this does not help the insects and plants that are dependent upon untouched old-growth coniferous forests.

The information that follows has been taken from the 1991 National Report on Pollution from the National Pollution Directorate and from the fact section of an accounting submitted by the minister of the environment in April 1992.

Norway receives significant pollution from abroad via the air seawater. It is very difficult to estimate developments with regard to these emissions. This pollution is not included in this national overview.

THE AIR

Climate Gasses

- In 1991, carbon dioxide emissions in Norway amounted to about 33.8 million tons, which is a decrease of 0.3 percent from 1989. Norway's emissions correspond to 0.2 percent of the world's total emissions of carbon dioxide. Measured per inhabitant, the figure is somewhat higher than the average in West Europe. The decline is due mainly to a 3

percent reduction in the use of gasoline and a 14 percent reduction in heating oil. From 1960 to today, Norway's emissions have more than doubled. The emissions from oil and gas extraction continue to grow.

- Emissions of methane in Norway have probably more than doubled since 1950. Today, it is estimated that releases from trash heaps and domestic animals combined are about 290,000 tons, which corresponds to 0.1 percent of the world's emissions. Emissions have stabilized in recent years.
- Norway's man-made emissions of nitrous oxide [lystgass] are estimated to be 17,000 tons, and stem mainly from the use and production of artificial fertilizer. The emissions have been stabilized.

Ozone Gases

- Norway does not itself produce the ozone-depleting CFC's [chlorofluorocarbons] and the halon gases. Since 1986, imports of CFC's have been reduced by 66 percent. Imports of halon have been reduced by 40 percent, to 90 tons. The use of CFC's is totally prohibited in Norway beginning in 1995.

Acid Precipitation

- Emissions of sulfur dioxides were reduced by 70 percent from 1973 to 1991. The Storting has agreed that by the end of 1993 emissions will be 50 percent of what they were in 1980. Already now, they have been reduced by a total of 63 percent! The reason for the reduction is, in part, environmental taxes, in part reduced sulphur content in oils, in part strict requirements on industry for purification, and in part reduced burning of oil as a consequence of inexpensive electric power and mild winters.
- Emissions of nitrogen oxides increased greatly in the first half of the 1980's as a result of a sharp increase in automobile size. From 1986 until 1991, however, they have been relatively stable. In 1991 they were 1 or 2 percent higher than in 1986, which is the base year for Norway's international obligation to achieve a reduction of 30 percent by the end of 1998.
- Emissions of volatile organic compounds (VOC) grew slightly. They stem mainly from industrial processes, from loading of oil, from use of solvents and gas-driven cars. It is primarily in offshore operations that emissions are increasing.

Local Air Pollution

- Emissions of carbon monoxide grew by 23 percent from 1973 to 1989. After this, they have fallen by 17 percent, something that is mainly due to new exhaust requirements for cars and reduced sales of new vehicles.
- Emissions of airborne materials were reduced by 30 percent from 1973 to 1982, but grew again up until 1987 as a result of a general increase in traffic and increased private wood heating. They have been reduced somewhat in the last few years.

- In 1989, 96 percent of lead emissions derived from leaded automotive gasoline. From 1973 to today, the emissions have been reduced by 80 percent.

NOISE

- The number of people who are strongly bothered by noise is estimated today at 200,000 to 250,000. The number is somewhat lower than formerly assumed. This is due not to reduced noise, but to better measurement methods. Oslo tops the list of areas affected by noise, with 43,000 who are very severely afflicted.

ENVIRONMENTAL POISONS

Industry

- From 1985 to today, very large reductions have been made in parts of industry's emissions of environmental poisons. In the last year, it has been mainly PAH emissions from the aluminum industry that have been reduced as a result of filtering efforts, and the dioxin emissions from Hydro Porsgrunn have been reduced by 80 percent. Moreover, the largest reductions took place from 1985 to 1990.
- Industry's emissions of environmental poisons into the air are poorly charted, something that will be improved in the course of 1992.

Consumption

- Of the significant number of products sold in Norway that contain environmental poisons, some pollute the environment when they are used, while most of them first do damage when they are thrown away. Quantities are difficult to estimate.
- Despite prohibitions against the use of tin organic compounds (TBT) as a bottom covering for small boats and for impregnating fishing nets, usage has increased from 23 tons in 1990 to 30 tons in 1991. The reason is greater activity at Norwegian shipyards.
- The consumption of many environmental poisons grew from 1985 to 1990. This pertains first of all to copper and PCB's. The consumption of lead, cadmium, quicksilver, and various chlorine substances has declined. The figures for 1991 are not ready.

Fish Farming

- From 1990 to 1991, the use of antibacterial substances in fish farming was reduced from 37.4 tons to 26.8 tons. Use and, along with it, emissions have, however, varied greatly in recent years, from 19 tons in 1989 to 48 tons in 1987. The fish farming industry uses just as much of such substances as do hospitals, doctors, and veterinarians put together. The most important thing that happened last year was a sharp reduction in the substance oxalic acid [oksilinsyre], which does not break down easily—from 27 to 11 tons. There was, however, a certain increase in the use of other medicines containing the nerve poison dichlorvos [diklorvos].
- It is estimated that the fish farmers used 120 tons of disinfectant substances in 1991.

- The use of impregnation substances containing copper grew from 46 tons in 1985 to 135 tons in 1991. This means that the largest part of Norway's increased copper emissions stem from fish farming.

INDUSTRIAL SALTS

- In the North Sea Agreement, Norway has obligated itself to reduce emissions of nitrogen and phosphorous by 50 percent from 1985 to 1995. At the start of 1991, the emissions of phosphorous had been reduced by 32 percent and nitrogen by 18 percent. For other areas developments are uncertain. In recent years, however, increased nitrogen and phosphorous pollution of fresh water and watercourses has been observed in east Norway.

OIL PLATFORMS

- Emissions of drilling waste [borekaks] containing oil has been importantly reduced in recent years and is not prohibited. Oil leakage in connection with production are growing apace with increased production, approaching 318 tons in 1991. In 1990, 220 tons escaped during production, as against 318 in 1991. All together 1564 tons were released from the oil platforms in 1991, against 1585 the year before.
- The use of chemicals, and along with this, emissions are growing in step with increased extraction. The SFT views the goal of a 30 percent reduction as not very realistic. Reported emissions grew from 119,000 tons in 1989 to 127,000 tons in 1991.
- Emissions into the air from oil extraction are growing both in actual figures and as percentage share of Norway's total emissions. The platforms' share of carbon dioxide emissions grew from 18 percent in 1989 to 22 percent in 1991.

ACUTE CONTAMINATION

- The total amount of acute contamination has gone down since 1989 and especially offshore operations have had fewer accidents. In 1991, 1157 cubic meters of oil were released following accidents, against 1551 cubic meters the year before. The number of releases from petroleum operations were reduced from 216 in 1990 to 127 in 1991.

WASTE

- Of two million tons of consumer waste collected annually, circa 800,000 tons stem from households. The rest if comes from industry. In addition come approximately 3 million tons of production waste and, besides, large amounts of waste from wood processing and the mining industry. It is difficult to calculate differences from year to year, but the amount of waste is growing evening and steadily.
- Around 5 percent of the waste is recycled.
- Of 200,000 tons of special waste, around 90,000 are handled by the concerns themselves. Of the rest, circa 59,000 tons were collected in a prescribed manner in 1990. In 1991 this share grew by 10 percent, to 65,000 tons.

NATURE MANAGEMENT

Protection

- Twenty-four protection plans remain to be carried out by the end of 1995. In the course of 1992, the government will submit a new national plan for national parks.

Species

- Stocks of elk, deer, and small animals have increased significantly in the last 10 years.
- A number of types of sea birds, among others the common guillemot, have sharply declined.
- The large predators are considered threatened or vulnerable, and numbers of wolves and bears have been greatly reduced in the past 10 years.
- Of Norway's vertebrates, six are considered directly threatened and 24 vulnerable, while 27 are rare. Of the higher plants, 30 are directly threatened, 41 are vulnerable, and 42 are rare. Similarly bad prospects exist for microorganisms and insects.
- Twenty-five local stands of native salmon have been extirpated and 54 stands are considered threatened by extinction.

SWITZERLAND

Europe's Largest Solar Power Station Opens in Swiss Alps

92MI0482A Bonn DIE WELT in German 28 Apr 92 p 25

[Text] The Phalk alpine photovoltaic power station, Europe's largest and most modern solar power station, goes into operation today, conceived by its clients and operators primarily as a research, development, and demonstration facility. A consortium of 11 companies, mainly from the electricity industry, hopes to use the project to research the economic viability and technical limitations of solar energy. Its designers expect the plant, located on what had been summer pastureland on the southern slopes of Mont Soleil, to have a nominal output of 500 kilowatts. The natural factors present are favorable as it is located at 1270 meters, above the normal fog line. Even during the winter, Mont Soleil receives so much sunshine that it is expected to feed an annual 700,000 to 800,000 kilowatt hours into the grid—sufficient to supply almost 200 households with electricity.

Almost 400,000 monocrystalline solar cells with a total surface area of 4,500 square meters are mounted on just 110 support platforms, thus obviating the need for the usual aluminum frame, which would have taken a year's electricity output to produce. Estimates of the time it will take to produce the amount of energy used in the plant's construction range from six to eight years. Nevertheless,

despite the fact that the plant will pay for itself in terms of energy output between two and three times faster than older designs, the solar cells will generate electricity less cheaply than originally planned.

Following a rise in the plant's overall cost to 9.5 million German marks [DM], at DM1.70 per kilowatt hour, its

electricity will cost almost double the DM0.90 initially estimated. Though the cost of generating electricity thus raises doubts as to the power station's economic viability, the doubts do not extend to its value as a research facility. It is intended primarily as a center for Swiss research groups wishing to develop and test new photovoltaic systems.

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